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An alumni benchmark analysis of the master of agriculture program in professional agriculture at Iowa State University (1979-2004)

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An alumni benchmark analysis of the master of agriculture program in professional agriculture at Iowa State University (1979-2004)

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For the Major Program

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CHAPTER I. INTRODUCTION

Agriculture is considered one of the oldest occupations in the history of humankind. At present, agriculture continues to contribute to the economies of many developed and undeveloped countries. Due to agriculture's importance, it is no longer considered a traditional sector that generates resources and goods to the gross domestic products (GDP) (FAO, 1997). Rather, agriculture is considered a business that is evolving rapidly due to many factors including technological advances, economic powers, globalization and high demands on skilled workers in the markets that are characterized by its competitiveness. The recent and ongoing changes that are taking place in the agricultural sector underline the importance of education as an effective way of shaping the future of this complex industry by meeting the needs of individuals and business with skilled and trained employees.

The organizations and structures of each localized economy have been impacted by globalization, which resulted in changes in the processes of production and distribution in the global economy and other sectors including agriculture and education. These characteristics can be seen in the developed countries where education plays an increasing and important role. Thus, globalization has a great associated implication for education (Daun, 2002).

In many universities, agricultural education is playing a major role in providing students with various knowledge and competencies such as, leadership, management, marketing, technical and analytical skills that enable individuals in preparation for their professional career and employment.

As described earlier, due to rapid changes in the agricultural sector combined with advances in technology the situation of agriculture and information dissemination have changed dramatically. For example, many distance education programs are now depending on the World Wide Web (WWW) and the Internet as delivery methods for off-campus degree programs instead of correspondence.

Many universities are currently offering different educational programs in various areas of studies to prepare individuals with needed skills via distance education, to keep up with market forces and their continuous evolution. This trend is due to the high demand for education from adults and young adults returning to school to earn an advance degree and learn new skills. However, few programs are offering off-campus Master's degree programs in agriculture. Iowa State University, as a leading Land-Grant university, recognized the importance of the off-campus degree twenty-five years ago, which resulted in the implementation of the off-campus Master of Agriculture (M.Ag.) with a major in Professional Agriculture (hereafter in this document referred to as ProAg). The program is offered from the

Department of Agricultural Education and Studies at Iowa State University. Since its establishment, Iowa State University's ProAg program has allowed many graduates to gain useful skills that they are currently using in their jobs. The success of the program has been the result of many factors (e.g. good planning, diverse curriculum), including the hard work of its staff and faculty members.

This study investigated the current (ProAg) program offered by the College of Agriculture at Iowa State University. The program is important to the agricultural field and to continue to excel in the future, it is important to analyze the current ProAg program.

Description of the ProAg Program

Since its establishment in 1979 the ProAg program helped many adults to advance quickly in their professions and jobs. The Master of Agriculture provides a great opportunity for many individual learners to go back to school with the aim of developing professionally and advancing in their careers.

Purpose of the ProAg Program

The purpose of the program is to meet adults' learners' needs to gain more knowledge, skills, and to be more attuned with the current changes in the job market. The Master of Agriculture allows many individuals to enroll in the program

as part-time students while maintaining their full-time jobs. Many people join the program for several reasons such as professional development, renewing their teaching certification, self-satisfaction to pursue an advance post graduate degree program, to be promoted, and earn higher income (Iowa State University ProAg Program, 2003). Miller, (1992) mentioned in his article that the off-campus credit programs (The Master's of Agriculture and the Bachelor of Science) in the College of Agriculture at Iowa State University were started in response to the increased demands and needs among individual adults working in agricultural related occupations who were unable to being physically present on-campus to participate in classes.

The program requirements are as follows:

1. Each student must present a creative component by the end of his/her program (4 credits) (see appendix C).
2. Complete 13 credits of courses and workshops focusing on areas like economic studies, technological advances, sustainable agriculture, and leadership.
3. Complete 15 credits of courses based on students' needs and according to the plan of study (POS) discussed with the committee.

4. Students must have a least a bachelor degree to enroll in the program in addition to their working experience (not an obligatory requirement).

The program objectives are as follows:

1. "To provide baccalaureate graduates who are professionally involved in the agricultural and food system, the opportunity to obtain an advanced professional degree through an off-campus graduate program.
2. To provide highly developed training in the science, technology, and business of the agriculture and food system.
3. To provide graduate faculty in the College of Agriculture the chance to interact with agricultural and food system professionals and to better assess the current issues and research needs" (Iowa State University ProAg program, 2003). For additional information about the ProAg program (see appendix C).

Data was collected to analyze the current curriculum and employment practices associated with the ProAg off-campus Master's Degree program, and assess the effectiveness of the current degree in meeting graduates and businesses' needs in the marketplace. The process may help educators, administrators and teaching staff to adopt new ideas and facilitate change in their way of thinking and

working to incorporate the impact driven by globalization.

The world is changing rapidly due to globalization. Globalization is revolutionizing the way many things are structured in work, production process of many merchandises and supplies. It is even apparent that globalization is impacting indigenous cultures, traditions, and customs in many countries as well as ties and relations among different nations (Duan, 2000). In this context, technology plays a dominant role in expanding and disseminating knowledge and information around the world. Satellite technologies are now enabling many people around the globe to meet synchronously through videoconferencing (Friedrich, 1995).

At present, it is critical to provide faculty members with innovations and information technology essential to increase their productivity; speed up and improve students' development and continuing education. New learning opportunities, teaching tools and equipment could be offered through recent technological advances which will help universities provide access to the growing markets of learners at distance around the globe (Branscomb, 1995).

Currently, few universities are offering complete off-campus Master's Degree programs, but due to high demand some universities are working on developing their own programs to meet the needs of professional and adult learners. Branscomb (1995), "believes that universities are still slower than businesses and the military in

applying technology due to lack of incentives on the part of the university, students, and faculty members, and with the lack of control universities have over their operations and faculty" (p.77).

Technological advances are also putting traditional learning on campus in jeopardy. The phenomenon of "campusless" learning, where the videoconferencing will challenge the necessity to distribute knowledge and information from traditional universities' campuses and in this case learners may finish their undergraduate or graduate degrees in shorter time (Friedrich, 1995, p.91). As part of Land-Grant universities' mission and in response to the enormous ongoing changes in the local and global learning market, universities are changing and adjusting their curricula to offer more off-campus degrees in order to meet learners' needs and expand their outreach to serve the adult learners and non-traditional students.

Many students are increasingly enrolling in higher education motivated and empowered by the fact that it will benefit there economic and social status in their future lives (Mazzarol & Soutar, 2001). Moreover, education reflects not only learners' earnings during their lives and careers but it also mirrors the social and economical status of many individuals. This signifies that individuals' revenues are related directly to their levels of education (Mazzarol & Soutar, 2001). Additionally, Carnoy (2002) states that "Because two of the main bases of globalization are

knowledge intensive information and innovation, globalization should have a profound impact on education. Yet-education does not seem to have changed much at the classroom level-even in those nations most involved in the global economy and the information age"(p.xv).

Many educational institutions are now forced and obliged to adopt new tactics and approaches to recruit both local and global students in their programs because education is viewed as an important commodity in the competitive marketplace (Mazzarol & Soutar, 2001).

The new delivery methods in distance education (e.g. the Internet) facilitate the growth and development of off-campus programs. The Internet has revolutionized distance's education mode of delivery. This change has led to an increase in the number of courses taught via distance education services (Mazzarol & Soutar, 2001). The advent of using such technologies mainly multimedia and videoconferencing, are allowing educators to offer learning materials at convenient times to best fit learners' schedules. In addition, videoconferencing permits the linkage of two or more campuses locally, nationally and internationally. The recent invention and advances in communication technologies are helping effectively in expanding education to reach end-users and penetrate new international distance education markets. These education markets are expected to continue to develop

rapidly during the future years (Mazzarol & Soutar, 2001). All previous factors combined require close attention from researchers of off-campus degree programs offered via distance education from Colleges of Agriculture at Land-Grant universities.

Globalization and Education

Stromquist (2002, p. xiv) states that "the process of globalization today links the economic and technical power of certain groups with the knowledge and skills that are produced in schools. Many educational policies reflect the will of outsiders, particularly international institutions and business groups." Understanding globalization, which Stromquist (2002, p.1) defines as "a multidomain, multilevel phenomenon" would help in learning more about various forces that impact the nature, new directions and strategies of many educational institutions. Such understanding would increase chances of predicting many consequences of knowledge production and diffusion of information.

Globalization also takes place when a local business or native products successfully traverse the boundaries of a certain region or country and go globally. This success is later translated in the domination of the product or business in the markets of many places equal or higher to its local social and economic impacts and status (Jenson & Santos, 2000). This previous definition encompasses the basics

of power resulting from innovations in communications and pressure from multi-national companies when they succeed in going over the borders. Thus, globalization is highly linked to the increased power of the market (Stromquist, 2002).

Globalization affects and shapes our daily lives directly or indirectly. Its influence covers many areas and sectors in any economy like: production, consumption, traveling, and education, either in developed or developing countries. As a result of advances in technology and communications, people have changed their way of thinking to deal with different global issues. The impact of globalization has been fast enough that we are currently witnessing many people watching foreign news broadcast in different languages, learning more about others' cultures, beliefs, attitudes and beginning to act accordingly. We are no longer living in isolation from the other parts of the world. What happens on the eastern hemisphere affects others on the western hemisphere and vice versa.

Due to rapid changes in information technology and innovations, the world is seen as one village where communication plays a major role in facilitating interaction and dialogue among various countries. Distance education is currently bridging the geographic gap among many nations to better serve people, education and the dissemination of information around the world (Dixon, 1996).

Education is one of the sectors that is being enormously affected in the new globalization era. It has become a major key factor in changing many of the social and economic strategies within society. According to Stromquist (2002, p.viii), "Globalization promotes not only the expansion of education but also its importance in everyday life in terms of both material production and life success".

Life in the 21st century is characterized by the spirit of globalization, with organizations in the private and public sectors (i.e., businesses, corporations, educational institutions and schools) looking for specific criteria and competencies when recruiting and hiring new employees. Therefore, the globalizing of economies needs a shift in the current education systems to help learners achieve and gain adequate skills required to accomplish their jobs effectively. These skills could be summarized in the following: critical thinking, assessment, evaluation, problem solving, team work, communication and networking, to practice adequate judgment and cooperate with others. The purpose of education has changed from transferring knowledge to providing more complex information combined with new skills (Cogburn). Stromquist (2002), states that both public and private educational sectors need to take into account some serious steps and plans of actions to be able to meet the new accelerated trend of globalization. Many educational institutions which become less relevant to the needs of businesses are now adopting and

implementing new strategies to meet the new priorities and requirements of emergent businesses and knowledge in the market. The adjustments are beneficial for many educational systems to be consistent with changing and evolving needs and at the same time "reflect the will of outsiders" (p.xiv). Consequently, this issue has created a higher demand on distance education institutions to offer more off-campus degrees to meet individual and businesses needs. The expansion, spread and creation of international markets that we are witnessing nowadays are due to the recent development and maturation of distance education as a successful communication and delivery medium. As a result many basic skills are transferred to adult learners internationally which emphasize the strong influence of globalization on several educational practices (Armstrong & Namsoo).

Moreover, technology is considered the major contributor to distance education's evolution, which helped enormously in the remarkable and impressive spread of information around the world. Different forms of cooperation, alliances and the creation of new consortia are speeding up the popularity of distance education. Thus, traditional educational institutions are joining many businesses, foreign governments, and international organizations to offer and use distance learning. Satellites and the Internet are transforming the world faster than we could imagine into a barrierless educational arena, with the aim of benefiting individual

citizens, educational institutions, business and corporations (Carnoy, 1999; Mazzarot & Soutar, 2001).

Many governments, businesses, and individuals are now part of this revolutionary stage through their contribution to worldwide economy that is seen as the locomotive for development in many countries. Because the economies of many countries are contributing to the global economy, globalization is connected directly to the market place, work force and educational institutions around the world.

Globalization and Distance Education

Information and communication technologies are highly linked to globalization. Globalization of knowledge was due to recent advances of the Internet allowing many individuals to immediately access information. The advantage of the Internet to easily send and receive information is envisioned as having enormous ability for education (Carnoy, 1999). Computers with its quick capabilities in processing and retrieving information are viewed as a remedy for low quality education. Globalization is directly impacting classrooms via computers and the Internet technology which are considered as part of the latest technological changes (Carnoy, 1999).

The new structure of educational technology characterized by globalization is boosting the utilization of distance education to reach and cover isolated and remote

areas in many communities, high schools, colleges, and workers via mass media, and the Internet network. As a result many labor workers are educated, trained in certain skills via distance. Thus, a larger impact is expected to occur when using the Internet, computer technology to educate adults and lifelong learners than relying on conventional schools (Carnoy, 1999). It is also important and convenient for many adult learners to access information associated directly or indirectly to their jobs, and also to gain certain skills and knowledge associated with their daily lives. Adult learners look for knowledge and information that meet and satisfy their needs, especially areas related to their work and professional development. Thus, paying close attention to issues impacting adult learners and practices used in delivering training are very important to the success of any off-campus Master's degree program (Carnoy, 1999).

Technology Impact on Education

The new worldwide growth and development in science and technology has increased the number and the depth of subjects essential to a thoughtful understanding of agriculture. Sustainable agriculture, agri-business management, information systems, food processing and post-harvesting technologies, biotechnology, and farming systems improvement are considered some of the new fields that must be integrated and incorporated into curricula. The creation of new

jobs requesting candidates with specific skills is reflected in pulling a great number of learners to gain expertise in these areas. These days, the rhythm of change is faster and much more common in agriculture and scientific sciences despite the fact that agriculture and agricultural education have kept pace with scientific developments and discoveries in the past. New sciences and scientific discoveries are accelerating quickly as new technology channels facilitate information's sharing and dissemination among scientists and professionals. Therefore, it is vital that students develop their cognitive skills; construct abilities which will help them acquire efficient knowledge successfully and improve their own capabilities during the rest of their career. At the same time, there is a need to re-orient the current agricultural curricula to better reflect the market and career opportunities. Planning, development and organization of proper curricula could be achieved via continuous analysis and assessment of emerging needs and criteria from employers in the market. Meanwhile, many educational institutions and universities need to update its delivery systems by implementing the latest software and hardware technologies to keep up with new updates made within curricula and at the same time expand its discoveries and knowledge via offering distance education programs. Today, this step is very critical for many public and private institutions in order to meet the increase demand on learning among several end-users beyond campus borders

(FAO, 1997).

Cooperation via continuous meetings and conferences between different parties involved in the education settings is a right step towards success. Therefore, universities personnel and colleges' staff on one side and the private business managers from the other side work collaboratively to reach an accurate estimation of the total numbers of employees needed to be added to the current workforce, and kinds of career opportunities and skills necessary for the market. As a result skills required to perform different jobs will be available for many alumni. In this case the academic institutions must develop its curricula and delivery systems for that purpose (FAO, 1997).

Many people view education as their ultimate goal in life, which will later help them get a good job or achieve a certain position within the hierarchy of society. Therefore education is critical in shaping the future of many graduate and undergraduate students. Preparing qualified graduates is a priority for many educational institutions around the world. Pressure from private providers and corporations on the local, national, and global levels is now higher than ever due to new requirements and demands to prepare competent candidates for the market (Duan, 2002). Those graduates will be able to find a niche for themselves, compete globally and empower their country's economic status in the market.

According to Duan (2002), "globalization tends to standardize and homogenize cultures. This fact together with, the spread of high and other technologies puts pressure on the educational system to produce de-contextualized knowledge"(p.20). This means that produced knowledge should be flexible enough to facilitate its dissemination via distance technologies in both developed and undeveloped countries. In developed countries, where globalization is highly impacting its economies, many students learn basic knowledge in their schools. In addition they learn to be artistic, critical thinkers, developers, innovators, and flexible enough to find untraditional solutions to problems (Adler, 1992).

Globalization and Businesses Needs

The influence of globalization is impacting the social and economic domains of our lives as well as education. Currently, more educational institutions are adjusting their curricula to fit with private sectors' requirements, cultures, and wants as a result of influence and pressure created by multinational companies and corporations on many educational systems (Stromquist, 2002).

These changes have taken place in response to business groups' interests in developing well educated and trained graduates who are capable of maximizing the value added of many goods as well as the general productivity and economic status of the United States in the World. In order to be competitive and to meet business'

wants in the global market, it is important to teach and train graduates on technical skills and competencies to produce high quality goods. Thus, educators in many institutions must adopt more rigid requirements for graduation and develop new curricula that meet the business' needs (Stromquist, 2002).

Moreover, agricultural institutions in general and agricultural education institutions specifically are playing an important role in reviewing, adjusting and replacing their strategies and policies with new ones to survive in the recent changes and accelerated challenging social and natural environment of the 21st century. Many alumni from agricultural colleges are facing several difficulties in finding jobs or employment opportunities that meet their educational background and qualifications. This is due to the fact that a lot of teaching methods, techniques and agricultural curricula are outdated and have been prepared without taking into consideration the needs of the farming population and agricultural labor in the market. Unfortunately, education within the agricultural sector has not been directed to the growing needs of the commercial sector which is characterized by its difficulty and complexity (FAO, 1997). The huge and fast changes in scientific and technological knowledge necessitate changes in agricultural education and other sectors.

Finally, it is important to mention that meeting globalization's challenges

would be necessary to prepare individuals for the workforce of new, expanded markets beyond borders. Therefore, education has to play a major role in providing training, competencies and skills that would help to promote an individuals' creativity in the new, competitive environment. Simonson, Smaldino, Albright and Zavacek (2000) mentioned that distance education is an important and great medium to meet the increasing number of learners with different social and economic backgrounds and characteristics. Many institutions become involved in distance education (off-campus) programs, for many reasons such as: increase access to target groups of learners that is difficult to reach, to meet institutional strategic long-term goals to expand and survive the ongoing worldwide changes and to avoid being left behind in the adoption and use of new technology (Berg, 2002). The off-campus training and education programs will enable learners to gain new skills and competencies, which will result in satisfying their needs and meeting new standards for employment.

For that reason, there is a crucial need to analyze the current off- campus Master's Degree programs. This study focused on analyzing the current off-campus Master's Degree in Professional Agriculture (ProAg) as an example of a distance education program offered by the College of Agriculture at Iowa State University. The program represents a good educational opportunity for professionals in the

field of agriculture to earn a Master's Degree while working full time. This study, like many studies (Nti & Bowen, 1998; Dooley & Murphy, 2001), attempted to investigate the perceptions of graduates concerning a distance program.

Statement of the Problem

The roles of both education and universities are increasing especially in relation to complex economic problems and issues on the national and global levels because several economies are becoming knowledge-based oriented. To encourage consistent development and growth, universities and educational institutions must concentrate on: the protection and safeguarding of local information, creating innovative and new information, distribution of the two types of knowledge, social and economical innovations, solving problems related to the fast rhythm of globalization in rural and urban areas, in addition of promoting the establishment of local communities and organizations (Pyle & Forrant, 2002).

Globalization is accelerating and changing the rhythm of several fields worldwide, including the agricultural sector. Farmers are now producing not only for the local market but also for global ones in order to meet the high demand of many consumers. At the same time they are consuming many goods produced and imported from many places around the globe. In this case, many processes which start with the production and end with marketing and distribution of goods directly

involve many other actors in the education field who are affected by the globalization (i.e., universities and graduates). Through their graduates, universities are contributing to the market workforce both locally and globally. Markets and businesses are now requiring, more than ever, specific skills and competencies to hire and employ new graduates. The new requirement is a natural result and evolvement to meet the revolutionary era and is characterized by advances in the Internet and telecommunications channels. Many Master's program graduates finish their degree without gaining skills and core competencies like verbal and oral communication skills, creative thinking, and problem solving. This leaves them with fewer opportunities in the marketplace and affects their future careers in agriculture. Thus, universities are implementing and offering new educational programs that meet students and employers' needs.

This study sought to determine graduates' perceptions towards the ProAg off-campus Master's Degree program offered by the College of Agriculture at Iowa State University.

Currently, the number of institutions offering off-campus graduate degrees in agriculture is limited despite the fact that there is a high demand from adult learners. Developing and offering off-campus Master's Degree programs has become a very critical and important issue for many public and private educational

institutions, due to several reasons described earlier. People in many organizations are seeking better jobs to improve their social and economic status. Therefore, the key factor in this issue lies in education. In the agriculture sector, as in many sectors, there is a high tendency for adults to return to school to earn a degree to improve their professional career; however time, cost, and distance remain the main barriers to satisfying their needs and interests (Thompson, Simonson & Hargrave, 1991). Thus, universities offering and delivering such programs and degrees via distance benefit learners and providers. Enrolling students in distance education programs increases the number of students. In addition, the university becomes, able to expand its knowledge beyond campus to non-traditional students and develop a niche in the off-campus educational market locally and globally (Stromquist, 2002). On the other hand students would benefit from earning a degree that would add to his or her professional work and career status, while satisfying an eagerness to learn. By developing their alliances, institutions and universities can expand their outreach programs by accessing new areas and markets nationally and internationally. Cooperation between universities could result in the formation of consortia to offer joint degrees, providing students with the opportunity to take one or more courses from different campuses in order to finish and complete their degree or to receive an accredited certification.

Purpose and Objectives

The study assessed students' perceptions about the ProAg program in agriculture that is offered off- campus. It also provides information regarding the number of graduate students who enrolled in this program and are now working in agriculture related occupations. Alumni of the program provided feedback regarding the content of distance education ProAg program in agriculture. In short, it serves as an analysis tool for assessing the effectiveness of the distance education ProAg program in the College of Agriculture at Iowa State University. The College of Agriculture could use the data and information collected from this study for future program planning as well as to guide decisions regarding the curriculum. It could also serve as a guideline when designing and delivering future distance education Master's Degree programs at Iowa State University.

The purpose of this study was to assess the current ProAg Master's Degree program by providing information about Iowa State University alumni's description of current practices used which could serve in improving the quality of the program.

Objectives:

1. Provide an accurate illustration of the current distance education Master's Degree programs offered from the College of Agriculture at Iowa State University.

2. Enable administrators, and staff members at Iowa State University to readjust and reassess the program to fit and meet new demands in the marketplace.
3. Provide valuable information about services and support given to students.
4. Help Iowa State University in offering future distance education Master's Degree programs from the College of Agriculture.

In order for these objectives to be met, the following research questions were examined.

Research Questions

Many research questions arose in terms of the objectives of this study, they are:

1- What are graduates' perceptions regarding practices in the ProAg off-campus Master's Degree program (e.g. admissions, financial aid, academic advising etc.)?

2- What are the reasons that encouraged graduates to participate in the ProAg Master's Degree program?

3- Were graduates needs and expectations met or exceeded?

4- Did the ProAg Master's degree curriculum help graduates advance in their work and career?

5- What were the barriers affecting off-campus students while earning their degree in the ProAg program?

6- What are graduates' perceptions regarding teaching methods used in the off-

campus Master's Degree program?

7- What are graduates' perceptions regarding interaction with instructors?

8- What are graduates' demographic characteristics?

Limitations

The researcher attempted to maintain internal and external validity in the study. The following are the limitations under which this study was conducted:

1- The findings of the study will be limited to the population studied.

2- The small population size is due to a limited number of graduates of the off-campus Master's Degree program offered from the College of Agriculture at Iowa State University.

Assumptions

It was assumed that:

1- The participants in the study will provide accurate information with a high degree of integrity.

2- The participants in the study will understand and interpret correctly the items in the questionnaire.

3- The written questionnaire is the most accessible means to obtain the needed information from graduates.

Operational Definitions

For the purpose of this study, it is essential to define some of the terms used throughout the research.

Competencies: A competency, according to the Webster's dictionary (1993) is defined as having requisite or adequate abilities or qualities. Such personal capabilities are required more in a society characterized by a competitive working environment and accelerated by the globalization phenomenon.

Globalization: "This term globalization describes the increased mobility of goods, services, labour, technology and capital throughout the world." The importance of globalization augmented due to recent technological advances in telecommunication (Government of Canada, 2002).

Master of Agriculture: The Master of Agriculture is a non-thesis program that is offered off-campus with a major in Professional Agriculture (ProAg) from the College of Agriculture at Iowa State University.

Professional Agriculture: A field of study gathering all people who are involved directly in the agriculture profession or indirectly engaged in one or more of its related activities (e.g. food processing). For example, professional agriculturists might farm full-time as their main occupation.

Off-Campus Degree Program: An off-campus degree program means a degree that

is offered via distance. Students do not have to be physically present on-campus to attend classes. Classes could be delivered to off-campus students using several methods (e.g. Internet, Videotapes, Interactive video).

CHAPTER II. LTERATURE REVIEW

The purpose of this study was to assess the current Professional Agriculture (ProAg) Master's degree program by providing information from Iowa State University alumni's description of practices used which could serve in improving the quality of the program. This study could also serve as a guideline when planning, designing and delivering future off-campus Masters' degree programs at Iowa State University.

The study was guided by the following objectives:

1. Provide an accurate illustration of the current off-campus Master's Degree programs offered from the College of Agriculture at Iowa State University.
2. Enable administrators, and staff members at Iowa State University to readjust and reassess the program to fit and meet new demands in the marketplace.
3. Provide valuable information about services and support given to students.
4. Help Iowa State University in offering future off-campus Master's Degree programs from the College of Agriculture.

In order for these objectives to be met, the following research questions were measured and illuminated

Research Questions

Many research questions arose in terms of the objectives of this study such as:

1- What are graduates' perceptions regarding practices in the ProAg off-campus Master's Degree program (e.g. admissions, financial aid, academic advising etc.)?

2- What are the reasons that encouraged graduates to participate in the ProAg Master's Degree program?

3- Were graduates needs and expectations met or exceeded?

4- Did the Master's Degree curriculum help graduates advance in their work and career?

5- What were the barriers affecting off-campus students while earning their degree in the ProAg Master's program?

6- What are graduates' perceptions regarding teaching methods used in the off-campus Master's Degree program?

7- What are graduates' perceptions regarding interaction with instructors?

8- What are graduates' demographic characteristics?

This chapter reviews literature related to the research in order to provide the reader with a background and a deeper understanding about issues associated with the study.

Graduate Studies and Adult Learners

Adult Education

Merriam and Caffarella (1999) defined adult education as the process that involves providing individuals who are more than eighteen years old or older with more knowledge, skills and information. Individual learners could enroll in learning activities as part-time or full-time students, or they could also study independently (at their own time and pace).

Moreover, adult education could be defined as any part or full time educational activity targeting participants seventeen years old and older (U.S Department of Education, 1986).

Adult education is also defined as a technique of teaching mature individuals who no longer participate in traditional schools as full time students, some basic skills, knowledge and information that will help them meet their eagerness to learn, and advance, move forward in their lives and professions (Essert, 1951).

Andragogy is defined as the practice that helps adults to learn where teacher moderates the learning environment to facilitate learning and the learner takes full responsibility for his or her own learning. This definition was contrasted with pedagogy that takes place in regular and traditional classrooms settings where

teachers are in charge completely of the learning process and learners are considered as passive receivers of information (Knowles, 1970).

Malcolm Knowles redefined the meaning of andragogy as "an emerging technology for adult learning" (Carlson, 1989, p.5). Adult education (Andragogy) is based on five assumptions related to adult learners:

1. "As a person matures his or her self-concept moves from that of a dependent personality toward one of a self-directing human being.
2. An adult accumulates a growing reservoir of experience, which is rich resource of learning.
3. The readiness to learn is closely related to the development tasks of his or her social roles.
4. There is a change in time perspective as people mature from future application of knowledge to immediacy of application. Thus an adult is more problem centered than subject centered in learning (Knowles, 1980, p.44-45).
5. Adults are more motivated to learn by inner factors rather than external ones (Knowles, 1984, p. 9-12)"(Merriam & Caffarella, p.272).

Many adults enroll in academic and professionally oriented higher education programs to gain access to skills and knowledge. In some cases education is

organized mainly for adults, but it is possible for adults to engage and participate in programs which are designed and delivered for full-time students. A typical adult learner is described as 25 years old or older, who work full-time job and enroll in adult learning programs motivated by the fact that it help him or her receive a promotion and improve his or her income (Bash, 2003).

Another characteristic that differentiates adult learners from traditional students (18 to 22 year old) is that adults are expected to express their sense of necessity at a more emotional level compared to young students. Bash added that "adult students almost always express their sense of urgency and impatience, either overtly or with some subtlety" (p.27). There are a variety of programs for adults intended to improve their knowledge or help them train in various professional fields; these programs could lead to a higher level of education. Therefore, adults engage in educational activities for several reasons. Some adults search for personal growth and development where they join educational programs for cognitive and knowledge development but also for social contact with other people and groups. Others join to gain skills and knowledge that would improve their career and social skills. Intellectual growth and development could be another reason for many people going back to school. Sometimes training or education is sponsored by individuals 'jobs to reach some organizational goals which would benefit both

employees and the organization (IWISE).

The importance of adult learning in the agricultural sector increased in relation to continuing education which is very crucial in their personal and career development and can not be overlooked (Martin,1990). Since, we are living in a changing world the agriculture sector is changing into commercial farms producing a very high percentage of the output and part-time farmers.

Therefore, changes and modifications are necessary in the agricultural education system to facilitate learning activities (Birkenholz, Harbstreit & Law, 1990). These modifications will enable universities and institutions to better meet the needs of all groups within society. The recent revolutionary changes in agricultural technology, communication and media, require new adjustments in the planning and delivery of educational programs. Roles and responsibilities of agricultural instructors, program administrators and planners will need to be reevaluated to meet the high demand of end users in this dynamic environment (Trede & Whitaker, 1998). Thus, distance education could play a major role in the delivery and dissemination of adjusted agricultural educational programs.

Adults' Responsibility Towards Learning

Merriam and Caffarella (1999) stated that one of the characteristics of adults is that they are self-directed learners. Humans by their nature have great capabilities to

grow and develop when they take the responsibility of their own learning. A practical approach for learning is preferred by adult learners in such circumstances. Adults during this learning process are independent and are in control of their own decisions and choices. In addition to adults' full time roles and responsibilities at work and toward their families, they are responsible learners.

Adults and the Global Economy

Budgets cuts is one of many problems threatening almost all American businesses in addition to problems related to limited resources and supplies. This situation forced many businesses to come up with other alternatives to maintain the high quality of products with their fewer resources. On the other hand advances in technologies and communications enabled many corporations to reach the global market. As a result of the globalization phenomenon, current workers need to be trained and skilled not only to do present's jobs but future's jobs as well (Chute, Thompson & Hancock, 1999).

Murphy and Christiansen (1997), stated that "The world is rapidly moving toward a more global economy, a fact to which agricultural educators must respond by developing educational programs to ensure that agricultural students and professionals will be prepared to meet the challenges and opportunities being created in today's global village.....Education serves a very important role in

society by ensuring continuous development of a competent workforce. Agricultural educators are specifically responsible for ensuring that agricultural students and professionals receive proper training to function competently in the global agricultural environment" (p.,468).

Merriam and Caffarella (1999) mentioned that global economy and technology are affecting all of the society including adult learning. Technology had a remarkable influence on the workforce and the market. While the economy is changing the needs of adult learners are changing too. In response to the global pressure many universal economies are creating competitive environments characterized by its impressive consequences on adult learning. Currently, learning is planned, organized and offered based on participants' needs and recent global changes (Merriam & Caffarella, 1999).

Land-Grant University

A Land-Grant term is used to describe a public university in each state which began as a Land-Grant college of agriculture under the Morill Acts 1862 and 1890. The purpose of the Morill Act was to allow a large percentage of the population to have access to practical education related to their daily lives. The Land-Grant college act was named the "Morill Act" after Justin Morill from Vermont who played a major and critical role in passing the legislation. The Act permitted each state to

receive public land to start a college where individuals could learn about agriculture, military tactics and mechanic arts. Over the years many states added other colleges such as science and medicine, fine arts to the colleges of agriculture. In 1890 the second Morill Act was introduced and passed to increase the donations and grants for colleges. Portion of these funds were used to start black institutions which later resulted in the establishment of 17 historically black Land-Grant colleges. Tuskegee University is an example of a black institution that is currently well known nationwide and that suffered under the old educational and segregation policies of African American students early in the 20th century (NASULGC).

Despite the fact that the Land-Grant act took several years to influence the American higher education structure, its main contribution was in two areas: 1-the Act helped in establishing public Land-Grant universities in each state around the nation to teach practical and applied sciences; 2- The act give birth to establish an effective American higher education system to meet the nation's educational needs (NASULGC).

Throughout the years the status of Land-Grant universities changed into what we witness today: A public Land-Grant university in each state and territory in addition to the District of Columbia. Many Land-Grant universities helped millions of American and international students to gain skills and knowledge that are useful

for their profession and their communities. Iowa State University (ISU) is one of the leading Land-Grant Universities in the world. ISU provides students from the U.S and many countries around the globe with research findings, knowledge and education that help in linking the clientele and researchers. To accomplish these goals ISU has a strategic plan that focuses on three main issues: learning, discovery, and engagement. An important component of this plan is to promote continuing education (adult education) and communication services and to add value to the programs and materials related to lifelong learners (ISU Extension Strategic Plan, 2001). The ProAg program is a solid example of the kind of cooperation which helps adult learners earn a Master's Degree and meet their needs.

American Higher Education

The beginning of American higher education goes back to the seventeenth century with the foundation of Harvard College in 1636 (Cangemi & Kowalski, 1982). It was a critical issue for descendants of Cambridge and Oxford to start a college to protect their families' culture. Religious principles were the base for the foundation of early colleges which were characterized with strong ties between college and church. The colonial colleges' transformation and development were impacted by numerous issues. In 1767, the first influential change took place at Harvard when many instructors with expertise in different subject matter started to

teach their learning materials to undergraduates for four years period instead of having only one instructor teaching all the materials. In 1692, Harvard granted its first Bachelor degree in Arts. The purpose of this degree was to provide honored students a chance to learn the conventional curriculum which changed after the Civil War allowing students to choose among many subjects. In 1770, Columbia University launched a medical doctorate. The first Master's degree in Arts (M.A.) was granted from North Carolina University in 1856, while the first doctorate of philosophy degree came in 1861 granted by Yale University. Originally, the U.S. PhD degree was adopted from the German higher educational institutions. The origin for the establishment of all the previous degrees were based on the idea of providing individuals with some core competencies which will help them perform their jobs effectively and at the same time serve their societies. According to Cangemi and Kowalski (1982) "the most outstanding stimulus in the growth of higher education in the 19th century resulted from passage of the Morill Acts of 1862 and 1890" (p.13). Higher education sustained to prosper after the two worldwide wars I and II (Cangemi & Kowalski, 1982).

American Graduate Education

Graduate studies in the Unites States went through several stages of development. Many believe that it started officially with the foundation of John

Hopkins University in 1876. The establishment of Hopkins University was based on the decision of trustees to implement and infuse the German graduate learning system in the American Universities. The arrangement at Hopkins University was to have undergraduate curriculums while focusing on graduate studies in relation to staff employment. In 1876, the numbers of graduate and undergraduate students were fifty four and thirty five respectively. Two decades later in 1896, more than sixty higher educational institutions including well-known universities (e.g. Harvard and Columbia) employed John Hopkins alumni as teaching staff (Westmeyer, 1985).

Many American students were disappointed due to the fact that there were few opportunities to continue their graduates Studies in the U.S. Thus, they moved to Germany to fulfill their educational needs. " For example, between 1815 and 1914, American students attended German universities to the extent of over 10,000 individuals –half of them at Berlin, the others at Leipzig, Heidelberg, Halle, Bonn, Munich, and Gottingen"(Westmeyer, 1985, p87).

Due to the high number of students seeking graduates studies, many graduate educational programs were recognized around the nation after opening Johns Hopkins University. As a result, in the beginning of the 20th century, over one hundred educational institutions were offering graduate studies to earn Master's

and Ph.D degrees (Griggs, 1965).

A Master's degree could be defined as "a program of instruction requiring at least one, but no more than two years of full-time equivalent academic work beyond the baccalaureate degree, the completion of which results in a master's degree conferred by the faculty and ratified by the governing board of an institution granting the degree"(Malitz, 1981, p.381). Danesy (1994) mentioned that a "Master's degree programmes require one to two years of study beyond the bachelor's degree (i.e. 30 to 60 credit hours)"(p.85). He added that "most programmes leading to a Master's degree require the successful completion of a lengthy research paper (Master's Thesis)"(Danesy,1994, p.85). In addition Dansey appointed out that a Master's program is considered a terminal degree which could help in finding a high professional employment. At the same time the master's degree enables many individuals to apply for graduate school to pursue their studies for a doctoral degree (Danesy,1994).

Conrad, Haworth, and Millar (1993) indicated that the near the end of the 19th Century, a main rational was embedded into a master's degree education which was to offer the holders of bachelors degrees opportunities to meet needed schooling related to their careers (e.g. teachers). A master's degree became known as a pass for secondary school teachers. Over the first four decades of the 20th Century the

development of the master's education witnessed a great increase in higher education. This was due to the high number of individuals continuing for a doctoral degree, high demand on teachers with certifications, and mounting demand of business and government for master's graduates who had advanced specialized training.

During 1970's and 1980's, a new model emerged for the Master's degree which was "practitioner oriented", stressing and putting more weight on training individuals on skills and competencies necessary for job improvement and advancement. This new model shifted the old idea that a Master's Degree should be mainly targeting full-time scholars, highlighting "theory based curriculum" instead of experiential and hands on learning (practical approach) (Conrad et Al., 1993, p.16). In addition as a result of these changes some Master's program requirements canceled the requisite to write a thesis or initiated a "non-thesis" option (e.g. creative component) (Glazer, 1986).

The Master's Degree is more prestigious than ever because of its connection to the market and workforce which attracts more students to the graduate level. The prestige achieved from earning a Master's Degree transformed the universities into factories to producing professional candidates with appropriate understanding and training. In the United States the Master's Degree portrays "professionalism" across

many disciplines. The Master's Degree is "practitioner oriented,...it emphasizes practice rather than theory, skills rather than research, and training rather than scholarship"(p.83). Thus, many individuals look for competencies that will qualify them to work in their professions which do not signify they are not scholars (Glazer, 1986).

Students value and weight the master's degree because it broadens their knowledge, contacts, networking (social and professional), helps them get better jobs, and earn higher incomes. In short many students think that earning a master's degree will facilitate them opening many gates in the markets and professional world. Conrad et al. (1993) stated that "Most students and alumni told us that, at the individual level their master's degrees were valuable credentials in the workplace and a boon to advancing their professional careers. Most graduates who pursued their doctorate similarly remarked that the master's prepared them well for more specialized study. Faculty, administrators, and employers generally concurred with these observations" (p.316).

Distance Education

Traditionally formal education consisted of students receiving information from a teacher at one location (the classroom). Distance education changed this way of learning or thinking. Advances in technology and communication made it

possible to reach learners physically in other locations. Currently, using distance education is considered easier than ever. Technological innovations made distance education doable and affordable. Educational institutions are investing more in their infrastructure to launch live interactive two-way communication systems. Each system connects two or more sites while transmitting and receiving video and audio which are called video conferencing systems (Miller & Miller, 1998). According to Moore and Kearlsley (1996) distance education could be defined as a: " planned learning that normally occurs in a different place from teaching and as a result requires special techniques of course design, special instructional techniques, special methods of communication by electronic and other technology, as well as special organizational and administrative arrangements" (p.2).

Swan (1998) stated that the purpose of distance education technology is to bring both on and off-campus learners the same learning experiences. In this case distance educators must make sure that the learning experiences provided via distance education systems are equivalent and similar in its quality and quantity. In addition, the origin of both on and off-campus education is to offer learners with applicable, practical, and valuable knowledge to motivate and encourage them to learn. In general, on-campus teaching occurs when the instructor meets face to face with students at certain time and location around the campus which facilitates

interaction. On the other hand, the off-campus teaching takes place when the teacher and students are separated geographically from each other according to time and location. Off-campus teaching is known and recognized as a teaching method.

According to Swan and Brehmer (1994) when a live or synchronous audio and video delivery happens between an on-campus site and an off-campus site, it is called "distance education". During this kind of education learners and instructors interact with each other by asking questions and commenting on ideas, thoughts related to the subject matter.

Distance education, according to the United States Department of Agriculture as cited in (Swan, 1998) is defined as a pioneering procedure to provide information from a main site to students who are isolated by distance and time in other places.

Moreover, Mehrotra, Hollister and McGahey (2001) mentioned that distance education could be compared to any official delivery method where the entire instruction takes place between different locations (host and remote sites) physically separated, and at the same time the instructor and students are not actually present at the original site. Distance education delivers courses and programs from K-12 education, lifelong education and business (STAR Schools). Distance education is evolving and changing quickly, and though each new technological advance helps distance education play an important role in our daily lives. Distance education

makes it possible for many learners to register in many classes or programs to gain access to knowledge and information. At the same time, shortage in and unqualified staff could be sometimes considered as barriers for many institutions. Therefore, distance education could help educational institutions overcome these barriers by offering various learning materials (Swan, 1992).

Miller and Webster (1997) indicated that recent technological advances in communication made education accessible for adult learners. These advances impacted the education sector in general and mainly agriculture education. Many instructors in the agricultural education sector are using distance education as a fast medium to facilitate adult learners' access to information. Schoenfelder (1995) added that the increased usage and widespread of distance education enabled more adult learners to obtain education. As a result, more agriculture educators are now using distance education to reach adult learners who have family and work responsibilities. Moreover, education is viewed by many adult learners as the entryway to the national and worldwide markets. In this kind of environment distance education is playing a critical role and considered a key factor in the success and prosperity of continuing education which helped many adults to sharpen their skills and gain more knowledge (Korsgaard, 1997). The previous description of distance education indicates its critical function in offering education

locally, regionally, nationally, and internationally via many technological forms including video conferencing.

History of Distance Education

Distance education started originally with what is called "correspondence study". The correspondence system started in the United Kingdom in 1840, to distribute letters by post anywhere around the country. Correspondence education existed in many countries, it was officially known in the United States in 1883, when New York State allowed granting degrees from the Chautauqua Institute using this technique (Moore & Kearsley, 1996). By the 1970's, distance education grew when the Open University adopted the educational technology (radio and television) to deliver its programs. Later the reputation, and reliability of distance education improved considerably (Garrison, 1989). In the past distance education was not widespread because the technology was costly and not user friendly. Currently the technology is inexpensive and used more in distance education which allows people to learn from their homes and workplaces.

Rational of Distance Education

According to Holmberg (1986), the main reason behind the development of distance education is to augment the numbers of sites available for adult learners to access information and to offer a variety of learning programs through other

additional continuing educational services. Sometimes distance education is favored due to economic reasons and because its cost-benefits advantage (Holmberg, 1985b). Increased interest in educational advances, societal equality and individual development may also have led to development of distance education. Near the end of the 1980's there was an increasing tendency to use distance education to study courses by both on and off-campus students due to advances made in telecommunication and information technology(Holmberg, 1986).

Reasons for Distance Education Expansion

Mehrotra et al. (2001) indicated that during the last few years there have been a great number of higher education courses offered through distance. The number of courses augmented from 33% in 1995 to 44% in 1998. Similarly the number of degrees offered via distance jumped to 1190 in 1997-1998 compared to 690 in 1995. This development is due to the increased usage of the web as an innovative technology for distance learning. Besides the technological improvements that helped in the recent expansion of distance learning, there are several reasons as follow:

1. Growing prerequisites for post graduate education for job progression.
2. Increased demand among the majority of students to offer course at flexible scheduling that meet their life style as adult learners working full time jobs.

3. The emergent market for personal accomplishment courses which is motivating individuals to improve their revenue in the society.
4. The change in public opinion to accept education as a continuous activity for both young and adult learners.
5. The augmentation of the number of individuals seeking license or certification renewal each year or two as a requirement for their occupations and jobs.
6. The increased weight that many companies put on some competencies when employing individuals rather than diplomas.
7. The change in the way people learn and instructors teach which moved from teacher-centered education to student-centered learning.
8. There is more understanding among instructors that people learn differently and persons differ significantly in their learning styles.
9. Currently, there is a great need to offer flexible courses and learning materials to facilitate educational opportunities to disabled learners.
10. The difference in learners' eagerness to learn in a classroom.
11. The high demands on land-grant universities from policy makers to implement and develop an efficient partnership with other educational institutions (Mehrotra et al., 2001).

Theory of Distance Education

Many theoretical attempts have tried to identify the main characteristics of distance education among which is Moore's theory of "independent study classifying educational programs on the two dimensions of autonomy and distance" (Moore, 1977a, 1977b). Keegan (1986) identified theory as something that ultimately can be concentrated into a phrase, or a sentence, or a section. At the same time this should include some useful research that provides the basis of needed arrangements, function and management could be raised. There have been many trials made to meet these strong necessities.

In this sense Holmberg (1986) said that distance education theory could be summarized as follows: "Distance teaching will support student motivation, promote learning pleasure and effectiveness if offered in a way felt to make the study relevant to the individual learner and his/her needs, creating feelings of rapport between the learner and the distance education institution (its tutors, counsellors, etc.), facilitating access to course content, engaging the learner in activities, discussions, and decisions, and generally catering for helpful real and simulated communication to and from the learner."(p. 11)

Characteristics of Distance Education

Keegan (as cited in Holmberg, 2003) listed the characteristics of distance

education according to the following criteria:

- "The quasi-permanent separation of teacher and learner throughout the length of the learning process (this distinguishes it from conventional face-to-face education).
- The influence of an educational organization both in the planning and preparation of learning materials and in the provision of student-support services (this distinguishes it from private study and teach - yourself programs).
- The use of technical media-print, audio, video, or computer- to unit teacher and learner and carry the content of the course.
- The provision of two-way communication so that the student may benefit from or even initiate dialogue (this distinguishes it from other uses of technology in education).
- The quasi-permanent absence of the learning group throughout the length of the learning process so that people are usually taught as individuals and not in groups, with the possibility of occasional meetings for both didactic and socialization purposes" (p.80).

Synchronous and Asynchronous Delivery Methods

Media and technologies have developed to the point that they permit teachers

to deliver quality teacher-student activities and courses both in real time (synchronously) or delayed time (asynchronously). Synchronous delivery method was defined by Willis (1994) as being "real –time, live and conversation-like during the instructional setting," while asynchronous delivery method as "delayed, before or after the instructional session" (p.46). When conducting synchronous activities it is useful and important to use the telephone (real-time audio) to contact all participants and start effectively a learning group activity. This is not the case when the learning environment is based mainly on the asynchronous interaction and delivery because it is difficult to get in touch with individuals, plan and divide tasks among the group (Anderson & Garrison, 2003).

Mehrotra, et al.(2001) added that a synchronous method described as a "two way-communication at the same time" which permits learner-instructor interaction (p.71). "Two-way radio, telephone, interactive television, and Internet conferencing are some common examples of synchronous technologies for distance education"(p.72). Asynchronous delivery methods are diverse and vary from the traditional to the most sophisticated and up to date technologies. Asynchronous learning networks allow people to work with various distant learning resources anywhere, and at their own pace and time. These methods include "printed materials, audiotapes, telephone service, facsimile (fax) machines, videocassette

recordings, radio and television broadcast, electronic files on magnetic or optical media, the internet, listservers, and bulletin boards or discussion groups" (p.76). According to Simonson et al. (2000), explain that "brainstorm and role playing" are the most widely used methods because they are compatible for synchronous course instrument, while the most frequent use is "simple discussion of course content". During synchronous activities it is difficult to schedule online meetings particularly if students are separated by several time zones. In contrast, asynchronous activities are suitable when learners are spread across several regions. The advantage of this system is allowing time for students to reflect and work at their own pace before sharing their thoughts and ideas in class discussion. However, the method also has the disadvantage of lack of instant response and an inadequate length of time necessary to carry on a discussion.

Interaction in Distance Education

Interaction has been the issue of many educators. Many of them stressed the importance of interaction in the learning process. For example, Laurillard (2000) argued that the university education must reach a level higher than just facilitating access to information or content which will result in better engagement with others. This engagement will prosper through interaction between teachers and students.

Interaction is a critical component in distance learning settings and because

the later is a growing sector therefore learners' capabilities to interact with their instructors are very important issues (Main & Rise, 1995).

In this sense Acker and McCain (1993) pointed out the significant role played by interaction in the learning process to increase and progress through feedback between students and instructors. Moreover, Kearsley (1995), Jackson (1994), and Main and Rise (1995) stated that one of the most essential instructional basics of distance learning is interaction because its presence improves positively the efficiency of the course.

Johnson (2003) underlined the importance of interaction among students during the learning practices to obtain a high quality of teaching. In addition, it is essential for the success of interaction to have positive group dynamics, through motivating participants to be involved in programs activities which will facilitate the feedback process. Moreover, the key factor for the success of distance learning courses is communication. Since, faculty and students don't meet face to face therefore maintaining good communication channels via chats rooms, online discussions, small group projects and study groups which have interactive components that help encourage interaction is important.

Types of Interaction

Moore and Kearsley (1996) identified three types of interaction used by

distance educators: "learner- content interaction, learner-instructor interaction, and learner-learner interaction" (p.127). Anderson (2003) discussed the three previous forms and added three more forms of interaction "teacher - content interaction, teacher- teacher interaction, and content - content interaction" which will be explained in the following section (p.137). Anderson (2003) pointed out that (Figure 1) which was explained by (Anderson & Garrison, 1998) as the modes of interaction in distance education, summarizes the six forms of interaction and excluding a larger portion of interaction that exists outside the formal education such as interactions between students and their teachers from one side and families, work and societies on the other side. These environment impact and control the milieu in which the official learning education occurs.

Teacher - student interaction. Marland (1997) stated that usually "during teaching and learning activities, students interact with other teachers, lectures, other students, principles, teacher-librarians, laboratory assistants, proctors, tutors and a range of other resource staff in a variety of settings, both formal and informal"(p.84). Learning is considered a social practice therefore teachers have to play a large role in allowing higher levels of interaction among students. Interacting with students will result in a greater comprehension of the learning materials and students will develop new schemas and powerful lens to examine, and envision their

surroundings worlds. Garrison and Anderson (2003) added that "confirmational interaction traditionally takes place between students and teacher" (p.42). This kind of interaction plays a role in strengthening and determining the gaining of new skills via "selective" support and growth. Students could add to their reservoir of knowledge through the usage of computer programs, online interactive tutorials.

Garrison and Anderson (2003) pointed out that the interaction helps in developing ties between new content and the existing intellectual structure which allow students to build and construct more detailed and composite links between existing and new information and skills. Anderson (2003) indicated that the quality and quantity of student-teacher interaction depends on "the instructional design" plus the selected teaching actions invented and prepared to teach the program. This process requires teachers to be taught to plan activities that increase the influence of interactions with students and provide other forms of interaction when time limits become extreme.

Student - student interaction. Anderson (2003) explained that cooperative and shared learning among adults help in creating wealthy educational values and assist in growing the "body of knowledge" related to student-student interaction. In addition, the unlimited flow and trade of ideas, thoughts and knowledge accompanied by collective feedback help individuals reach high academic

achievements and accomplishments. Student- student interaction obligates learners to create and make a profound understanding of things. Communication of ideas to other students is essential to the development of a careful progress to learning. Since, colleagues' interaction is viewed as a significant element in the curriculum of several fields. Thus, the ability to contribute effectively in groups, communicate with peers, classmates, other experts, and express great communication is very crucial for both individual and professional achievement. Moore and Kearsley (1996) underlined the importance of what they called "inter-learner discussions" as a means of assisting students to reflect outside the content and to check it with in trade with their classmates. Garrison and Anderson (2003) argued that electronic education increases the valuable custom of independent learning of early generations of distance education. This requires a mix of synchronous and asynchronous learning activities. Therefore we can't decide exactly if distance learning is considers a personal or collective procedure.

Student - content interaction. Almost all students in most types of adult learning are interacting with many educational materials and contents. Students in the conventional educational class settings interact using textbooks and other library materials while in distance education settings they interact with electronic materials in addition to extra resources prepared by faculty members (e.g. study manual).

Technologies are very helpful to a large extent in developing a lot of media options that promote student-content interaction. These media technologies could be sorted into five groups: sound, text, graphics, video, and virtual reality (Tuovinen, 2000). Learner-content interactivity in distance education settings could be created in several levels, each has a different purpose. This includes linear, support, update, construct, reflective, simulation, hyperlinked, and nonimmersive contextual and immersive virtual types of interactivity (Sims, 1997). Anderson (2003) said that the learner-content interaction is considerably changing because of the enormous ability of the Internet in stocking up, listing, and bringing such content, powered by the capability of computers to maintain a diversity of computer- assisted tutoring, imitations, and arrangement methods. Anderson (2003) pointed out to "the pioneering work of the MERLOT consortium (http://www.merlot.org) and CAREO consortium (www.careo.org)" (p.136) as a great model that shows how instructors could work together to construct, develop, assess and hand out materials for student-content interaction. This kind of cooperation helps in boosting the learning activities and in providing more significance to learning resources. Anderson (2003) added that student-content could complete some tasks related to the educational process that was previously achieved via teacher-learner interaction. "The appropriate amount, efficiency, and efficacy of this substitution of machine of

human labor will dominate learner-content research for the foreseeable future" (Anderson, 2003, p.137). Moore and Kearsley (1996) indicated that the interaction of learner with the content is a significant feature of education. Education is a planned practice supported by an instructor and his /her institution. In this kind of environment each student has to build his/her own knowledge via a procedure of accepting information into the current intellectual reservoir. As a result changes in the learner's comprehension take place due to interaction with content. Therefore the objective of distance education is to provide the content required for the success of this procedure. In this case students will be able to interact with content displayed via through audio and video programs, DVD, CD's and virtual interactive multimedia programs.

Teacher - content interaction. This kind of interaction was not one of the three types of interaction highlighted by Moore and Kearsley (1996). A teacher's role in this form of interaction is critical for the success of distance education programs. In this case teachers interact with content by using search engines that provide them with other teachers learning experiences and occasionally navigate the networks for appropriate information and data. Teachers play a major part in the development of "learning objects" that later transform into self-directed agents able to maintain student-content interaction. According to Garrison and Anderson (2003) "content

objects can be created that display and then calculate trends from real-time data sources such as economic indicators, new broadcasts, temperature, and other sensory data. Content agents can also be built that will monitor and report on research activities of researching teachers, thus creating new content automatically that both informs and involves students in the research process" (p. 137).

The fact that a human being trained computers "for example the Northern Light search engine (http://www.northernlight.com)" which have the ability to identify web sites and different subjects areas will help shifting from teacher-content interaction through automation to another form of content-content interaction. One of the most common tools used by instructors to create content are "WebCT and Blackboard". Tools for the formation of content developed recently from simple to complex presentation packages which enabled teachers to produce content that was developed originally by graphics designers and programmers. Tools are necessary to help teachers in developing, constructing and managing courses. Anderson (2003) predicts that the forms of teacher-content interaction will be more robotic which will make other tasks such as sustaining, additions and updating content materials much simpler and faster. In short, when teachers use tools that are necessary to produce influential distance learning programs they will be supporting high levels of teacher –learner interaction.

Teacher- teacher interaction. Anderson (2003) mentioned that the popularity of cheap "multimedia networks" provides excellent chances for teacher-teacher interaction. It is necessary for teachers to take the highest advantage of such networks to communicate with other teachers. This network will help in developing two things: the field of teaching and the expansion of distance learning teaching and "pedagogy". One of the most challenging things facing this issue is that faculty members rarely meet face to face or may not meet on daily basis. Thus, maintaining good communication among teachers is critical for the development of "virtual" societies for many distance instructors. Garrison and Anderson (2003) pointed out that due to the high security levels and travel cost; teachers are not able to engage physically in a quality teacher-teacher interaction. As a result of this situation virtual conferences facilitate teachers' interaction synchronously and asynchronously. Especially, with the emergence of new first generation "portals" which permit cooperation among teachers. Portals include tools and forums that help increase teacher-teacher interaction and allow exchange of knowledge and ideas at one website location. Websites are supported by some common software such as "http://www.webct.com" and "http://www.balckboard.com"which facilitate interaction between and among teachers in the E-learning community (Anderson, 2003).

Content-content interaction. This form of interaction is characterized by artificial intelligence. Anderson (2003) stated that computer scientists are now developing new "intelligent programs or agents" different from traditional software. These agents are capable of retrieving information, operating other programs, making decisions, and monitoring other sources in the network. The most common example of agents is the Internet search engines that always search the networks and send their results to the principle server or mainframe. Anderson (2003), predicts that in the near future teachers will be able to produce and use learning sources that automatically improve and update themselves through interaction with other intelligent agents. According to Garrison and Anderson (2003) there are several ways of interaction among three main actors: students, teachers, and content in all forms of education including distance education. The following figure (Figure1.) illustrates these types of interaction (Anderson & Garrison, 1998).

Studies in Agricultural Distance Education

Miller (1995) studied the challenges and opportunities of off-campus study in agriculture. He found that the main barriers facing distance education graduates (undergraduates and graduates) were limited number of courses offered from the College of Agriculture, complexity and difficulty in matching everyday jobs, difficulty to use the library facilities, and high tuition and fees. Results also showed

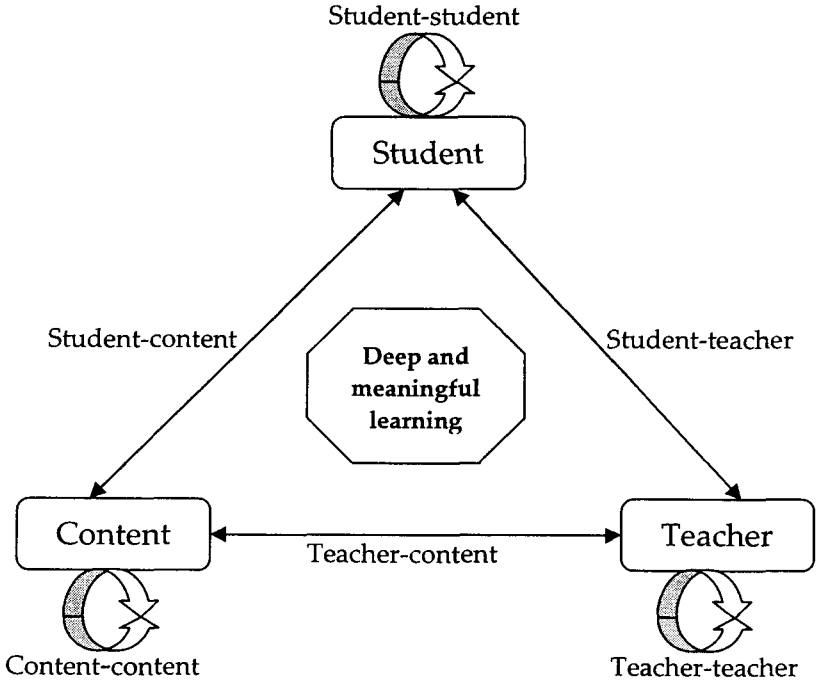


Figure 1. Modes of interaction in distance education.

that graduates were essentially motivated to join the distance education programs to earn a degree, graduates finished their degree in average five years, they had to travel twenty times or less for issues related to their distance education programs, finally the demographic characteristics of this study indicated that the majority of graduates were males with and average age of forty five years old. Miller (1995) recommended in his study offering more agricultural courses through the off-campus programs to shorten time needed to finish the degree. In addition, to establish collaboration to permit off-campus students to finish their laboratory activities and gain access to academic assistance from persons or institutions in student's local areas.

In their study, Miller and Pilcher (2000) contrasted and explained the opinion regarding the quality of on-and off-campus courses held by distance education students and faculty members at the College of Agriculture. Results showed that both faculty members and students had a positive opinion regarding the general quality of courses offered on and off-campus. Faculty members and students indicated that distance education courses had inferior quality compared to on-campus courses based intrinsic quality or "transcendent quality" which is usually known from experience. Respondents also reported that distance courses had higher quality than on-campus courses in relation to user-based aspect that deals

with consumer favorites and needs. Moreover, students indicated that distance courses were equivalent to on-campus courses in regard to the value-based aspect which is a high performance at an affordable value. Finally, faculty members indicated that distance courses were higher in relation to the value based aspect. Therefore, it was recommended to improve the quality of produced courses and learning materials and their distribution systems.

Miller and Honeyman (1994) studied the use of videotape as an efficient teaching practice among students enrolled in off-campus agriculture degree program. Results from this study showed that the majority of students are interrupted when they watch the videotapes and near half of them view the videotapes more than once. Student shared a positive perception regarding the 35 efficient videotapes teaching practices known as in the literature as one of the critical elements in the learning process. Students also had positive feelings in relation to videotape teaching especially when the teacher is considered as a "facilitator" in contrast to an information supplier. The study had some important recommendations that could be summarized as follows: 1-Instructors should work on identifying mainly the essential ideas they want to teach and combine them with examples and demonstration activities from real life situations, 2-Workshops should be provided for instructors using videotapes to teach their courses in the

college of agriculture at Iowa State University which will improve their teaching skills, 3- Instructors should also learn to be good facilitators and not just information providers, 4- Additional investigation is needed to study the effect of effective teaching practices on learner's success and satisfaction.

Born and Miller (1999) conducted a study about faculty perceptions of web-based distance education in agriculture. The study examined the opinions of Iowa State University faculty regarding Web-based distance education and mainly the Master degree program in agronomy. The results of the study indicated that faculty recognizable with the M.S in agronomy had considerably high opinions about the program, had perceived a lesson or had been contributing in the program. The faculty members were also unsure in regards to their views about web-based distance education degrees and the M.S. program in agronomy. Their main concerns dealt with the rigidity of the distance education program compared to on-campus courses in addition to the efficiency of interaction between students and their instructors. Finally, the faculty underlined the importance of adding more web-based courses into the curricula.

Miller (1997), in his research about studying agriculture through videotape, tried to identify learner's strategies and cognitive styles. According to Merriam and Caffarella, (1999) cognitive styles are characterized with stabilities in processing

information which develop in performance essential to individuality traits. Thus, some people tend to look at things from general perspectives, while other persons have more interest in details to make common sense of their world. The population of this study consisted entirely of students studying for a degree or advanced formal training via videotape courses offered from the college of agriculture at Iowa State University. Results showed that students preferred videotaped instruction for its convenience to study independently at their own pace and at any location. Students hardly ever studied with their peers and seldom called their instructors.

Miller and Pilcher (2002) conducted a study to examine if off campus students are provided with information related to learning strategies through videotapes, there academic performance would increase as well as their satisfaction with their distance learning experience. The study population included undergraduate and graduate students who were enrolled in off-campus courses offered from the College of Agriculture at Iowa State University during the two semesters: fall of 1999 and spring of 2000. The study revealed that students who were watching videotapes rated it very positively in regard to its importance to off-campus learners. However, students who were viewing the videotape did not receive high grades in the semester in which they participated in the study nor they did state a more encouraging approach to the distance learning environment

compared to the control group.

Murphy and Dooley (2000) tried to determine the strengths, weaknesses, opportunities, and threats associated with using distance education technologies in the college of agriculture and life sciences at Texas A&M University. The study focused on the perspective of administrators, faculty, and professional support staff. Qualitative research was utilized and the constant comparative method was used for data analysis. Creswell, 2002 described the constant comparative procedure as "an inductive (from specific to broad) data analysis procedure in grounded theory research of generating and connecting categories by comparing incidents in the data to other incidents, incidents to categories, and categories to categories" (p.451). A total of 42 interviews were conducted with 16 administrators, 15 faculty members, and 11 support unit employees. Results showed that participants identified several organizational strengths and distinguished the potential to use distance education technologies to improve instruction and to get in touch with new audiences via cooperation and new programs. Participants indicated that there was a need to develop policies and procedures to address critical issues such as incentives, support, training, quality control, careers, and communication channels. On the other hand, participants identified competition, dependency on outside assistance and misinformation on the Internet as organizational threats.

Murphy and Terry (1998) conducted a study to investigate the opportunities and obstacles of distance education in agricultural education. They used a three round Delphi technique to collect data from 61 panelists. Panelists were selected based on their expertise utilizing technologies in agricultural distance education programs. Findings showed that panelists suggested 21 ways in which technology could be used to improve instruction. Their answers were grouped into four categories: an increase in the accessibility of learning occasions for students, enhanced informational resources for faculty and students, more efficient and successful teaching materials, and more suitable delivery methods instructions. Panelists reached an agreement on 13 barriers grouped around: time limitation, lack of a reward system for formal faculty members, lack of technological support, expensive equipment costs, and inappropriate learning capacities.

Miller (1992) studied each participant's motivation in off-campus agricultural credits programs. The population for this study was all participants in the off-campus post –secondary degree program in agriculture at Iowa State University. Results showed that participants rated "cognitive interest" (e.g. seeking knowledge and joy of learning) as the main reason to join the program. The agriculturists were highly encouraged, and enthusiastic to enroll for professional development (e.g. secure professional advancement). Persons who worked for government service

agencies, as well as agricultural educators rated career and professional progress higher than production agriculturists or business persons. In contrast business persons and production agriculturists rated cognitive and intellectual interests higher than any other factors for their rational to enroll in the program. Master degree students rated the motivational factors of "social contact" and "social stimulation" more than the B.Sc. students or the non degree seekers.

Good Practices in Distance Education

Good practices in distance education have being the concern of many distance educators. They are as important in distance learning as the ones applicable to the traditional classroom. Technology and communication advances are helping students interact, communicate, and collaborate with their peers as active learners. Teachers, by their role, need to use the potential of technology to boost student learning (Mehrotra et al., 2001). Therefore, close attention should be given to practices implemented when offering distance education courses and programs. The purpose of the principles is to provide a guideline that institutions should follow when delivering an academic distance degree and certificate program (Principles of Good Practice, 2003). The following represents the good practices developed by the Southern Regional Education Board. These guidelines cover many areas of curriculum and instruction, evaluation and assessment, library and learning

resources, students' services and facilities and finances.

Curriculum and instruction. This section sets up the pedagogical needs and adjustments that an institutional academic program needs to go through for effective instruction. This includes interaction between faculty and students and among students, establishment of rigor of the degree awarded, qualified faculty members provide adequate supervision for the program offered via distance, and faculty should be well trained and have the expertise in teaching distance courses.

Evaluation and assessment. This part looks for the creation of efficient assessment and evaluation principles for distance education courses. This includes assessment of student learning, faculty and students satisfaction, evaluation of course materials and electronic catalog.

Library and learning resources. This part includes the need to provide distance educations students with the adequate learning resources including the library facilities and other equipment.

Student services. This part ensures that students have the suitable infrastructure to study at distance. This part will also enable enrolled students to access the various services available to support their learning.

Facilities and finances. This section ensures the availability and use of technical and other resources in an institution. In this case the institution should

demonstrate a commitment to continuously support students both financially and technically for the period necessary for students to complete their degree (Principles of Good Practices, 2003).

Principles of Good Teaching Practices

Mehrotra et al. (2001) indicated that there are seven good teaching practices that instructors should follow when teaching at distance as follows:

Good practice 1: Encourage faculty-student contact. It is critical to maintain a frequent faculty-student contact in and outside the classroom due to its impact on students' involvement and motivation. This could be encouraged via email contacts accompanied with feedback from the instructor. Students will feel more enthusiastic to participate in the class activities and won't feel isolated because they are away from the campus. Students could also call the instructor via a toll free number which will help in clarifying any difficulties regarding assignments or examinations.

Good practice 2. Encourage collaboration among student. Learning is improved when students work in teams rather than individually. Sharing ideas among students improve thinking and deepens the level of understanding. The instructor should encourage students to work in pairs and groups, share their reaction about their learning, introduce themselves to the rest of the class, and encourage them to ask questions.

Good practice 3. Encourage active learning methods. Learning does not take place when students are inactive listening to their teachers and memorize their assignments. Students must participate in the learning process by writing about their assignments, and relate it to their personal experience. This could be engaging students in some learning by doing and encourage them to share their ideas or skills with other students.

Good practice 4. Provide timely feedback. Continuous and timely feedback is needed from students. It is critical to receive feedback about performance, suggestions for improvement from the beginning to the end of the course. This could be through encouraging students to develop portfolios to document their progress along the course, providing online assignments and quizzes with immediate feedback. In addition, using one to one feedback via email could be used to maintain individual feedback. .

Good practice 5. Highlight time on job. Students need to use and manage their time efficiently for effective learning. Learning how to use the technology efficiently to access learning resources and providing study skills guide help students use their time effectively.

Good practice 6. Communicate high expectations. Communication high expectations continuously help in sustaining students' motivation. This could be

through providing a clear course syllabus, suggests extra readings, share students' success in the class. In addition, students should reflect, analyze, and summarize the information gained on their own learning. In addition monitoring students' logs could help in suggestions for improving the instructional materials or the course taught.

Good practice 7. Respect various talents and methods of learning. Finally, students learn differently and they need the opportunity to show their talents and learn according to the best way that works for them. This could be surveying students via email to know the best way they learn and also give students with the opportunity for self-reflection and self-assessment. Learning about students' strengths, knowledge and learning preferences would help instructors in selecting the best learning sources, delivery modes and assignments procedures for the course (Mehrotra et al., 2001).

Barriers of Distance education

Moore and Kearsley (1996) mentioned that there are some barriers that are blocking educational institutions and States from using their human and distance education resources. Mainly they are administrative barriers in nature on the federal, regional, state, and institutional levels. At the federal level barriers are related to the criteria implemented to decide if programs are qualified to receive

federal funds in addition to criteria used in supervising and assessing programs. "These all heavily biased toward traditional forms of provision" (p.192). At the regional level the criteria applied in granting institutions official recognition to teach are based on practices used on-campus including teaching methods in traditional classroom. On the state level, due to budget cuts and limited funding resources in which institutions must compete (Moore & Kearsley, 1996; Baer, King, Anderson, Hawkins & Baron,2002).

Baer et al., (2002) stated that "Budgets for the 2001-02 fiscal year represented the smallest increase to higher education in the past five years. In fact, colleges in 13 states did not receive enough funds even to keep up with the rate inflation" (p.14). At the institutional level, barriers include some inadequate administrative policies that presumed to help distance learners. Barriers exist in rules organizing the registration, fees and tuition processes, student support services, library services, tests and time and the terms of teaching at suitable times and places to learners (Moore & Kearsley, 1996). In addition, colleges need pedagogy to use the Internet effectively and faculty members need to be familiar with interactive and independent learning styles. Baer et al. (2002) stated that "distance education entails a host of teaching and learning practices that may be convenient for students but are far more labor intensive than traditional college practices: Creating courses,

maintaining chat rooms, and responding to e-mails from students around the clock require more time and energy from faculty than traditional courses" (p.6). Teaching at distance creates load on instructors' regular teaching responsibilities which impact the faculty performance to meet the needs of students.

Summary

This chapter shed light on some theoretical aspects related to the research study and questions. The review of literature in this chapter covered several theoretical areas as following: The first part dealt with aspects related to adult education as a discipline, characteristics of adults' learners and their responsibility towards learning in distance education. The second section covered issues related to Land-Grant universities in the United States of America with a brief description of its history, mission in the American higher education especially in the graduate level (Master's degree).This section included a full description of the Master's degree program, its history, purpose and requirements with a focus on the ProAg Master's degree program. Other parts of the review of literature in this chapter covered some previous studies related to agricultural distance education. In addition, the chapter listed different issues related to distance education including its history, definitions, rational, reasons for its expansion, theories of distance education, characteristics of distance education, different delivery methods (synchronous and asynchronous)

and interaction. Finally, the chapter displayed a review of good practices used in distance education as well as principles of good teaching and barriers of distance education.

The review of literature in this chapter helped the researcher in addressing the different research questions related to the study. This was through providing a good understanding of backgrounds related to issues covered in the questions.

CHAPTER III. METHODOLOGY

This chapter describes the methodology used to conduct the research study. The purpose of this study was to analyze the current ProAg Master's Degree program by providing Iowa State University alumni's descriptions of current practices used, which could serve in improving the quality of the program. It can also serve as a guideline when planning, designing and delivering future off-campus Master's Degree programs at Iowa State University.

Objectives

1. Provide an accurate illustration of the current off-campus Master's Degree programs offered from the College of Agriculture at Iowa State University.
2. Enable administrators, and staff members at educational institutions to readjust and revaluate the program to fit and meet new demands in the marketplace.
3. Provide valuable information about services and support given to students.
4. Help Iowa State University in offering future off-campus Master's Degree programs from the college of agriculture.

In order for these objectives to be met, the following research questions were examined

Research Questions

Many research questions arise in terms of the objectives of this study such as:

1- What are graduates' perceptions regarding practices in the ProAg off-campus masters' degree program (e.g. admissions, financial aid, academic advising etc.)?

2- What are the reasons that encouraged graduates to participate in the ProAg Master's Degree program?

3- Were graduates needs and expectations met or exceeded?

4- Did the ProAg Master's Degree curriculum help graduates advance in their work and career?

5- What were the barriers affecting off-campus students while earning their degree in the ProAg masters program?

6- What are graduates' perceptions regarding teaching methods used in the off-campus masters' degree program?

7- What are graduates' perceptions regarding interaction with instructors?

8- What are graduates' demographic characteristics?

The study used a survey instrument to collect the data from the Iowa State University alumni. The following section sheds light on survey development and procedures that were taken into consideration when surveying the ProAg graduates.

Development of the Survey Instrument

The literature review regarding survey instruments states that the questionnaire is the most frequent method used to gather data and information from subjects. A questionnaire also has the advantage of ensuring confidentiality and anonymity, which is helpful in gathering more truthful, honest responses compared to personal interviews (McMillan & Schumacher, 2001; Ary, Jacobs and Razvieh (2002). At the same time Ary, Jacobs and Razvieh (2002) pointed out that the questionnaire has a disadvantage when some respondents misunderstand the questions due to the wrong interpretation of wording or meaning, while other respondents with high level of education would be able to answer and react to a sophisticated questionnaire. After deciding the topic of the study, it is important to design and develop a questionnaire instrument that fits the purpose and to gather the required information of the study.

As McMillan and Schumacher (2001) argued, in a lot of cases readymade and accessible questionnaires could be used as an alternative instead of starting or setting up a new one because this would save the researcher's time and money. If this is not the case a new measure could be developed to match and fit the focus of the study (Kerlinger, 1964). The research objectives were used to write specific questions needed to collect information related to the study. In this sense Babbie

(1998) stated that effective questions or statements should be clear and understandable, short, simple, relevant and unbiased. The questionnaire consisted of several questions related to the research objectives, in addition to the demographic section.

As Bordens and Abbott (1991) pointed out in their book, it is advised that the researcher place the demographic items at the end of the questionnaire because subjects may turn it off if placed at the beginning. At the same time, sensitive, and delicate questions should be placed toward the middle of the questionnaire. This research used two types of questionnaire items: the open-ended questions and the close-ended questions (Babbie, 2002; Brodens & Abbott, 1991). A four Likert-type scale was used in the questionnaire (strongly disagree –strongly agree) to measure respondents' level of agreement(s) or disagreement(s) about issues in the questions. According to Babbie, the Likert-type scale allows the researcher to find out the relative strength of agreement intended by respondents. The scale is one of the most popular scales used in current questionnaire design. A score of four was assigned for positive items "strongly agree" and a score of one for negative items "strongly disagree". "Neutral" was omitted from the scale to encourage participants to respond to all the questions.

The survey consisted of seven sections plus demographics and seven open-

ended questions (see appendix B). The following describes each section:

Section 1 focused on graduates' perceptions regarding practices in the ProAg off-campus degree program. In this section graduates were asked to indicate the extent with which they agree or disagree with some questions (e.g. I had access to admissions services). This section used a Likert-type scale using four different options as follows: 1= Strongly Disagree, 2= Disagree, 3=Agree, 4= Strongly Agree.

Section 2 asked participants to select reasons that encouraged them to participate in the ProAg Master's Degree program by checking all the reasons that apply to their situation (e.g. I participated in the ProAg program for self-improvement). Graduates were asked to rate their educational experience with the off-campus Master's ProAg program on a scale of 1=Poor to 4=Excellent.

Section 3 asked participants to indicate whether their needs and expectations were met or exceeded in regard to the professional career and social expectations. The same section included three open-ended questions (e.g. What did you enjoy most about the ProAg program?) in addition to four questions using the Likert-type scale: 1= Strongly Disagree, 2= Disagree, 3=Agree, 4= Strongly Agree (e.g. the ProAg program provided value for money?).

Section 4 focused on questions dealing with skills gained while studying in the ProAg Master's Degree program. Two questions were open-ended questions as

follow: a-Can you identify any long term benefits of the ProAg program? b- Have you other comments about your study with the ProAg program? , while the rest used the four Likert-type scale: 1= Strongly Disagree, 2= Disagree, 3=Agree, 4= Strongly Agree. Another Likert-type scale 1= Not currently working, 2= Poor preparation, 3=Fair preparation, 4= Good preparation, and 5= Excellent preparation, was used in this section when asking the question about graduates feeling towards the ProAg preparation for their current jobs.

Section 5 dealt with barriers that affected graduates as off-campus students while earning their Master's Degree. A Likert-type scale, 1= Strongly Disagree, 2= Disagree, 3=Agree, 4= Strongly Agree, was used to answers questions of this section. (e.g. Access to library facilities was not an easy job).

Section 6 asked graduates to rate their perceptions regarding the teaching methods and quality of instruction in the ProAg program. A Likert-type scale, 1= Strongly Disagree, 2= Disagree, 3=Agree, 4= Strongly Agree, was used to answers questions of this section. (e.g. The teaching methods used in distance education are better than the traditional teacher, textbook and classroom method).

Section 7 focused on graduates' perceptions regarding their interaction with their instructors. A Likert-type scale, 1= Strongly Disagree, 2= Disagree, 3=Agree, 4= Strongly Agree, was used to answers questions of this section (e.g. Interaction

between my professors and myself was helpful). Plus another Likert-type scale, 1= Never, 2= Rarely, 3=Sometimes, 4= Always, was used to answers questions of this section (e.g. I had interaction with my professors while studying as an off-campus student). This section included an open- ended question about graduates' preference in terms of mode of interaction (e.g. what type of interaction mode did you prefer using with your instructors?).

Finally, a demographic section asked participants about their age, gender, ethnic background, current occupation, occupation when they began the ProAg program, and current work status. In addition, an open- ended question asked about whether participants would recommend the ProAg program in its mode to a friend.

The questionnaire design included some sections that were revised and modified from a creative component study conducted by an AGEDS graduate student in 2001. The creative component study was based on a research study conducted in 1994 by Greg Miller to evaluate the ProAg program offered from the Department of Agricultural Education at Iowa State University by surveying its graduates. Other sections were modified based on the survey conducted in 2002 by Kathleen Kelsey, Alan D'souza and S. Christian Mariger from Oklahoma State University at the Department of Agricultural Education. The survey measured the best practices in distance education as perceived by students who had graduated

from a distance education Master of Agriculture.

Validation of the Instrument

According to Creswell (2002), a pilot test of a questionnaire survey is essential in validating the instrument in which the investigator makes required adjustments based on participants' responses provided from a small group who filled out and assessed the instrument. In this sense, the instrument was given to two knowledgeable Iowa State University professors who are familiar with the ProAg program. As McMillan and Schumacher (2001) stated, "experts examine the contents of the instrument and indicate the degree to which they measure predetermined criteria or objectives" (p.241). In addition, the instrument was tested by graduate students in the Department of Agricultural Education and Studies to establish content and face validity. Face validity supposes that the instrument will be valid for its purposes, while content validity identifies whether the survey items are suitable for the study. This process provided useful feedback to the researcher, which was changed and adjusted in the instrument to increase its reliability. These changes enabled the researcher to identify the time needed to complete the survey, whether it takes too long to complete, and if the directions and items are clear.

The Population

The population for this study consisted entirely of graduates from the ProAg

off-campus Master's Degree program offered from the College of Agriculture at Iowa State University between years 1982-2004. A total of 106 students graduated over the past twenty-two years from the off-campus Master's Degree program. The information regarding all graduates who participated in this study was accessible through the Department of Agricultural Education and Studies. The information included names, addresses, emails, and telephone numbers. Names and addresses were used to contact and survey all graduates from the ProAg Master's Degree program; therefore no sampling techniques were used. The results of this research could only be generalized to a similar population which shares the same characteristics of the ProAg graduates or other off-campus Master's Degree programs with a similar population. Results from this study could be used in other programs that share the same characteristics as the ProAg program offered from the College of Agriculture at Iowa State University.

According to Ary, Jacobs and Razavieh (1996; 2002), a census study consists of the whole population of interest. In this type of survey study conclusions could be made about the whole population, thus random sampling, the utilization of inferential statistics, and testing of hypothesis are not required. Basically the descriptive statistics about the population under study are reported by the researcher (Creswell, 2002).

Ary, Jacobs and Razavieh (2002) state that the descriptive statistics "enable researchers to organize, summarize and describe observations" (p.118). The most commonly utilized methods of organizing data in descriptive statistics are frequency distribution (numbers and frequencies) (Ary, Jacobs & Razavieh 2002), measures of central tendency (the mean, median and mode), measures of variability (variance, standard deviation and range), and measures of relative standing (z-score and the percentile rank) (Ary, Jacobs & Razavieh, 2002; Creswell, 2002; Macmillan & Schumacher, 2001).

Data Collection (time frame)

The questionnaire was mailed to the population after approval from the human subject committee at Iowa State University on May 7th, 2004 (see appendix A). The following (Figure 2.) summarizes the different steps involved in the survey administration including the Prenotice or advance notice letter.

In accordance with Salant and Dillman (1994), an advance-notice letter was sent on May 20th, 2004 to all the population to inform them that the survey is coming shortly, to state the idea and the purpose of the survey, and to explain the importance of respondents' participation in the study (see appendix B). Each survey was mailed with a cover letter explaining the purpose of the research and thanking participants for their time spent filling out the questionnaire and for their

participation in the study. The cover letter explained how confidentiality was maintained and requested that individuals respond immediately.

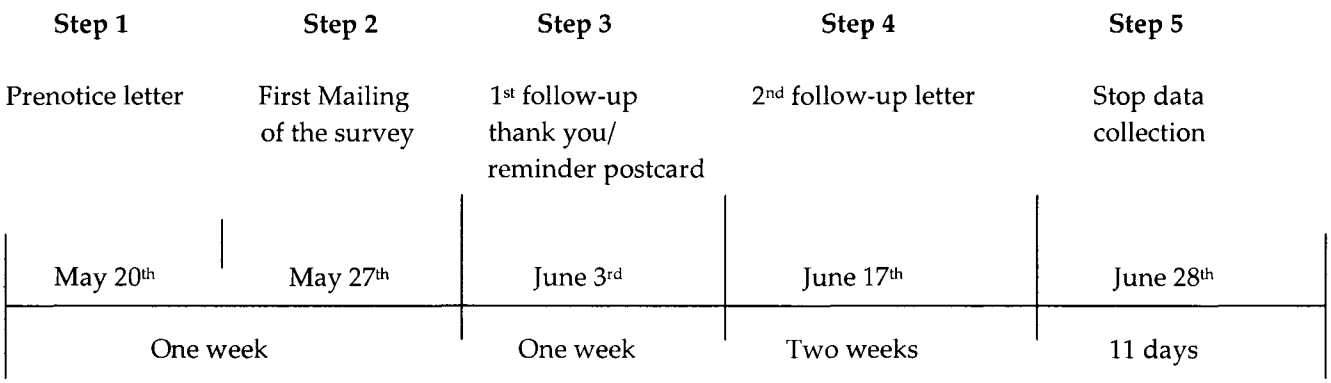


Figure 2. Data collection (time frame)

The initial survey was sent on May 27th, 2004 to the entire population of the ProAg graduates (see appendix B). All the participants were contacted, including the participant who is living in Mexico. The mailing consisted of a cover letter describing the purpose of the study and the importance of graduates' participation in getting an accurate feedback about the ProAg Master's Degree program. Each participant was sent a manila envelope (size 9" x 12") which included the cover letter, the instrument, a postage envelope (size 6"x 9") to return the survey and one-dollar incentive (Ary, Jacobs & Razavieh , 2002).

One week after the initial mailing, on June 3rd, 2004 a postcard was sent to respondents to remind them that the questionnaire was sent earlier and that their responses were critical to the success of this study (see appendix B). In this sense

Kanuk and Berensen (1975) state that a follow-up letter is one of the most effective ways to increase return rate. While Dillman (1978) mentioned that a postcard will be sufficient to remind all subjects after one week from sending out the questionnaire, Dillman also added that one week is a an reasonable time for making an appeal that is well-worded and reflects a degree of importance. The decision to send a postcard to all participants, whether they have returned their questionnaires or not, is a practical one because the response rate increase is between 15-25 percent (Dillman, 2000). Ary, Jacobs and Razavieh (2002) said that "this card serves as a polite reminder that a questionnaire was sent earlier and that the response is very important to the study" (p.407). At the same time it thanked those who had already responded. To deal with late respondents a follow-up letter and a copy of the questionnaire was sent out on June 17th, ,2004, three weeks after the original survey was mailed to all respondents (see appendix B). According to Babbie (2002), the best method to deal with non-respondents is to send a new copy of the survey questionnaire with a follow-up letter. Babbie adds that the follow-up mailing will stimulate a revival of returns. In addition, an original questionnaire and two follow-ups, with two or three weeks between mailings, seems to be the most effective way to increase the response rates. Questionnaires were sent to non-respondents (31.13%) along with the cover letter. Since the response rate after the second follow-up letter

is 82.1percent, which is an acceptable response rate, the researcher decided to stop data collection process on June 28th, 2004, eleven days after the 2nd follow-up letter.

Data Analysis

Data collected from questionnaires was coded and then entered into the computer using the Statistical Package for Social Science (SPSS) for analysis. Detailed procedures were written to summarize steps, procedures, and major findings for this study.

Response Rate

Creswell (2002) indicates that "a response rate is the percentage of questionnaires that are returned from the participants to the researcher" (p.410). He states that many studies and articles which are published in well recognized and referred journals, frequently refer to the response rate for mailed questionnaires as fifty percent or higher. This rate varies depending on appropriate announcement, adequate follow-up procedures, participants' interest in the study, the quality of the instrument, and use of incentives. According to Salant and Dillman (1994), for some surveys the fifty to sixty percent response rate that results from making four contacts may be sufficient. In the same sense Babbie (2002) argued that a response rate of fifty percent is sufficient for analysis and reporting. He added that a response rate of sixty percent is good, and seventy percent is considered very good. Three

weeks from the initial survey mailing the response rate was reported to be 73.58%. Seventy-eight questionnaires were returned out of one hundred and six, where one person passed away, one had an insufficient address and seventy-one completed their surveys.

After June 17th, the response rate increased from 73.58% to 82.1%. Eighty-seven questionnaires were returned out of one hundred and six, where one person passed away. The researcher was able to contact the person with the insufficient address via email, which resulted in getting and additional response. Nineteen participants were considered non-respondents, which represented 17.9% from the total population.

CHAPTER IV. RESULTS AND DISCUSSION

The purpose of this study was to analyze the current Professional Agriculture (ProAg) Master's Degree program by providing information about Iowa State University alumni's descriptions of practices used which could serve in improving the quality of the program. The study could also serve as a guide when planning, designing and delivering future off-campus Master's Degree programs at Iowa State University.

Objectives

1. Provide an accurate illustration of the current off-campus Master's Degree programs offered from the College of Agriculture at Iowa State University.
2. Enable administrators, and staff members at Iowa State University to readjust and revaluate the program to fit and meet new demands in the marketplace.
3. Provide valuable information about services and support given to students.
4. Help Iowa State University in offering future off-campus Master's Degree programs from the college of agriculture.

To accomplish the purpose of this study, the researcher addressed the following questions:

Research Questions

Many research questions arose in terms of the objectives of this study such as:

1- What are graduates' perceptions regarding practices in the ProAg off-campus masters' degree program (e.g. admissions, financial aid, academic advising etc.)?

2- What are the reasons that encouraged graduates to participate in the ProAg Master's Degree program?

3- Were graduates needs and expectations met or exceeded?

4- Did the Master's Degree curriculum help graduates advance in their work and career?

5- What were the barriers affecting off-campus students while earning their degree in the ProAg Master's program?

6- What are graduates' perceptions regarding teaching methods used in the off-campus Master's degree program?

7- What are graduates' perceptions regarding interaction with instructors?

8- What are graduates' demographic characteristics?

Reliability

According to Ary, Jacobs, & Razavieh (1996), "Cronbach alpha is used when measures have items that are not scored simply as right or wrong, such as attitude scales or essay tests" (p285). Lower reliability coefficients, between .50 to .60, might

be satisfactory, but in general higher reliability coefficients of .90 or more are most desirable (Ary, Jacobs, & Razavieh, 1996). Alpha coefficients are displayed in the following (Table1).

Table 1. Reliability coefficients of responses to sections

Sections	n items	Cronbach's Alpha
Section1. Practices in the ProAg program		
Perceptions regarding practices in the ProAg Off-campus Master's Degree program	6	.67
Section 4. Benefits of the program		
The ProAg program has impacted your life	5	.84
The ProAg program provided you with	7	.92
Benefits of the ProAg Studies	5	.65
Benefits experienced after graduation	5	.89
Section 5. Barriers of the program		
Barriers that may have affected you as an off-campus student while earning your ProAg Master's Degree	12	.70
Section 6. Teaching methods and quality of instructions in the program		
Perceptions regarding the teaching methods and quality of instruction in the ProAg program	8	.80
Section 7. Interaction with instructors		
Perception regarding your interaction with your instructors	5	.70

Section three has been omitted because it was not measuring a common theme or issue that will influence the Alpha score. While section two was not included because it was not using a Likert-type scale rather it encouraged participants to check all the items that apply to their situation. ProAg impact, teaching methods and benefits after graduation, were found to be highly reliable.

The ProAg practices, benefits of the ProAg, barriers, and interaction with instructors were reasonably reliable.

A descriptive survey instrument was used to conduct this study. Data was collected from alumni of the Professional Agriculture (ProAg) Master's Degree program during the period of 1982-2004. The survey was mailed to a population of 106 alumni. A total of 87 surveys were returned from the population under study for a return rate of 82.1 percent (Table 2).

Table 2. Response rates of respondents

Surveys Mailed	Responses Received		Return Percentage
106	86		81.1 %
	1 (passed away)		1.0 %
Total	87	Total	82.1 %

This chapter presents the findings related to the research objectives. The findings are organized into eight sections: Section 1 perception regarding practices in the ProAg Off-campus Master's Degree program, Section 2 reasons Alumni were encouraged to participate in the program, Section 3 alumni social and professional expectations, Section 4 benefits of the program, Section 5 barriers of the program, Section 6 teaching methods and quality of instructions in the program, Section 7 alumni's interaction with instructors during the program and Section 8 demographics characteristics of participants.

Demographic Characteristics of Participants

Participants were asked questions related to their gender, age, ethnicity, work status, current occupation and when they began the ProAg program. Eighty-six participants who filled out the survey and retuned it, the majority (83.7%) were males. Participants' ages ranged from 26 to 74 years old with a mean of (*M*=49.47). Approximately (95%) of participants were Caucasian, three participants (3.5%) were Latino/a and one participant (1.2%) was (Caucasian/Hispanic).

Participants were asked to indicate their occupations when they began the ProAg Program. Their answers were as follow: agribusiness (22.1%), farming (20.9%), agricultural extension (19.8%), agricultural education teacher (11.6%), U.S. government (2.3%), State Government (1.2%), and other (22.1%). Respondents (n=19) who chose "other" to indicate their occupation were described in a variety of fields (e.g. education, business and government sectors, and health industry) (see appendix D, Table C).

Participants were also asked to indicate their current occupation. The majority of participants (79.1%) reported that they currently maintain a full time job. The remaining participants indicated they were working part-time (2.3%), unemployed (2.3%), retired (5.8 %), and were self-employed (10.5%). Approximately one-third (32.6%) of the participants indicated that their current occupation was

farming, agribusiness (20.9%), agricultural extension (18.6%), agricultural education teacher (7.0%), U.S. government (5.8%), State Government (2.3%), and other jobs (34.9%). Participants (n=30) who chose "other" to indicate their occupation were described in a variety of fields (e.g. education, farming, health industry, religion, and businesses, in addition to some retired or semi retired participants) (see appendix D, Table D).

The following represents a discussion of the different sections of the survey. Each objective was addressed under each section. This helped in providing a clear picture about graduates' perception of the ProAg program in general.

Question 1. Describe graduates' perceptions regarding practices in the ProAg off-campus Master's Degree program (e.g. admissions, financial aid, academic advising etc.). The information provided through this question(s) helped the researcher collect data related to objective(s) # 3.

Table 3 displays data regarding participants' perceptions of practices in the ProAg off–campus Master's Degree program. Almost all participants (97.7%) indicated that they strongly agreed or agreed that the registration procedure for courses was manageable ($M = 3.45$; $SD = 0.55$). Almost all participants (93%) strongly agreed or agreed that they had access to admissions services ($M = 3.29$; $SD = 0.63$). In addition, more than three-quarters of the participants (89.4%) strongly agreed or

agreed that they had access to advising services (M = 3.27; SD = 0.64).

Table 3. Graduates' perceptions regarding practices in the ProAg off-campus Master's Degree program

Item	SD n (%)	D n (%)	A n (%)	SA n (%)	N**	M***	SD***
a. I had access to admissions services.	1 (1.2)	5 (5.8)	48 (55.8)	32 (37.2)	86	3.29	0.63
b. I had access to financial services.	5 (6.3)	23 (29.1)	39 (49.4)	12 (15.2)	79	2.73	0.80
c. I had access to advising services.	-	9 (10.6)	44 (51.8)	32 (37.6)	85	3.27	0.64
d. The registration procedure for courses was manageable.	-	2 (2.3)	43 (50.0)	41 (47.7)	86	3.45	0.55
e. The ProAg program was well advertised.	4 (4.7)	26 (30.6)	42 (49.4)	13 (15.1)	85	2.75	0.77
f. The ProAg program tuition and fees were reasonable.	1 (1.2)	2 (2.3)	60 (69.8)	23 (26.7)	86	3.22	0.54

Note: Scale SD= Strongly Disagree, D=Disagree, A=Agree; and SA= Strongly Agree
N=86
** Total number of participants who responded to this item.
*** Means & Standard Deviation reflect participants who responded to this item.

Question 2. Identify reasons that encouraged graduates participate in the ProAg Master's Degree program. Data collected through this question(s) helped in accomplishing objective(s) # 1.

Table 4. Reasons to participate in the ProAg Master's Degree program

Item	Rank Order of Responses	% Responses[a]
a. To fulfill a degree requirement	4	64.0
b. For the enjoyment of learning new information.	3	72.1
c. For self improvement/ personal satisfaction.	1	86.0
d. My employer suggested it.	6	33.7
e. To improve my career options.	2	80.2
f. This program was essential for my job.	5	40.7
g. Acquiring current technical knowledge.	4	64.0
h. Other reasons	7	12.8

N=86
[a]Participants were asked to check all that apply

Table 4 represents reasons participants were encouraged to participate in the

ProAg off-campus Master's Degree program. Participants were asked to select all answers that applied to their situation. The majority (86%) of the participants indicated that the main reason they participated in the ProAg Master's Degree program was for self- improvement and personal satisfaction. A large number of participants (80.2%) pointed out that improving their career options was their reason to participate. Others (72.1%) indicated that the enjoyment of learning new information was the reason behind their interest in participating in the program. A few respondents (12.8%) chose other reasons as their choice from the total responses. Participants indicated that other reasons included convenience in time and/or distance, employer requirement, retraining, higher income potential, social interactions, and only advance degree available.

Table 5. Main reasons indicated for choosing the off-campus ProAg Master's Degree program rather than the on-campus program

Item	Rank Order of Responses	% Responses[a]
a. Cost too expensive to take on-campus courses.	7	30.2
b. Time- I was unable to take time off for on-campus study.	1	83.7
c. Job requirements not flexible.	3	67.4
d. Opportunity to study at time and place of my own choosing.	2	81.4
e. Quality of the ProAg program.	6	44.2
f. Needed a distance educational program.	5	54.7
g. Could not identify another distance education program.	8	24.4
h. Wanted a broad-based agriculture program.	4	60.5
i. Other reasons	9	14.0

N=86

[a]Participants were asked to check all that apply

Table 5 indicates the reasons alumni chose the off-campus ProAg Master's Degree program rather than the conventional on-campus program. The majority of respondents (83.7%) indicated that time was the primary reason they chose the ProAg program. An equal number of respondents (81.4%) reported that the program offered an opportunity to study at the time and place of their choosing. Others mentioned that their requirements were not flexible (67.4%) or they had other reasons (60.5%) for choosing the off-campus program. Other reasons (14.0%) included the respectability of the university, improved self-esteem, job requirement, convenient location, and transfer of credits.

Table 6. Influence to earn the degree from ISU

Item	Rank Order of Responses	% Responses[a]
a. Reputation of ISU.	3	62.8
b. Reputation of the College of Agriculture at ISU.	2	73.3
c. No other institutions offered an off-campus Master's Degree in Agriculture.	7	43.0
d. Could not relocate to Ames to work on Master's Degree.	5	57.0
e. Fit my work schedule.	1	83.7
f. Costs were reasonable.	4	58.1
g. Professional colleague.	8	37.2
h. Spouse.	10	26.7
i. Parent.	11	22.1
j. University employee (professor, extension professional, etc.).	6	52.3
k. Employer.	9	30.2
l. Website for the program.	12	19.8
m. Other.	13	10.5

N=86

[a]Participants were asked to check all that apply

Table 6 represents factors that encouraged the alumni to earn a degree from

ISU. The majority (83.7%) of the participants indicated that the program fit their working schedule. Almost three-quarters of the participants (73.3%) indicated that they joined the program because of the reputation of the College of Agriculture at ISU or the University itself (62.8%). More than half (58.1%) of the respondents indicated that the costs were reasonable. In addition, a minority of participants (10.5%) indicated that other influences encouraged them to earn the degree from ISU. Among these reasons were: recommended by an ISU extension agent, previous degree from Iowa State.

Alumni were also asked about their feelings regarding the amount and quality of work required for the off-campus Master's Degree program. More specifically they were asked if the amount and quality of work was adequate for training and educational experience. The majority of participants indicated that their experience was either good or excellent, with forty-three (53.1%) and thirty-three (40.7%) respectively. A few (6.2%) participants indicated that their educational experience was fair. The mean and the standard deviation for that question were (M = 3.35; SD = 0.60).

Question 3. Identify if graduates' needs and expectations were met or exceeded. Data collected through this question(s) enabled the researcher to meet objective(s) # 1, 2, 3, and 4.

Participants were asked if (whether) the ProAg program met their professional expectations. Some (23.8%) participants indicated that the program exceeded their expectations (Table 7). A majority (76.2%) of the participants indicated that the program met their expectations, while nobody mentioned that the program did not meet their career expectations. The mean and standard deviation were (M=1.8; SD = .0.43).

Table 7. The ProAg program professional career expectations

Item	n	%
a. Exceeded my expectations.	20	23.8
b. Met my expectations.	64	76.2
c. Did not meet my expectations.	-	-

N=84

Table 8. The ProAg program social expectations

Item	n	%
a. Exceeded my expectations.	18	22.0
b. Met my expectations.	59	72.0
c. Did not meet my expectations.	5	6.0

N=82

Similarly, respondents were asked to identify if (whether) the ProAg program met their social expectations. As (table 8) indicates, more than one-fifth (22.0%) of the participants felt the ProAg program exceeded their social expectations. The majority (72.0%) of participants mentioned that the program met their social expectations. Five participants (6.0%) indicated that the program did not meet their

social expectations. The mean and standard deviation for this question were (M = 1.84; SD = 0.51) correspondingly.

Participants were also asked about the most enjoyable aspect of the ProAg program. Nearly all (91.9%) of the participants expressed things they liked about the program. The most common themes occurring in participants' comments were flexibility, interaction, and learning.

Flexibility. *A* little more than one quarter (29.1%) of the participants indicated that the flexibility of the program was one thing they enjoyed most about the ProAg program. Participants were able to study and review lecture materials on video at their own pace. In addition, the ProAg program was flexible enough to allow them to continue their education while working and taking care of their families. e.g. "Flexibility & opportunities to study on my own time plus continue to work"; "Flexibility work at own pace, when I had time. Could go back and review lecture materials without holding up an entire class".

Interaction. Nearly half (46.8%) of the respondents indicated that interaction with their instructors and peers during classes or meetings with professors was very important. e.g. "Interaction with all the people involved –peers and instructors"; " Interacting with other working professionals".

Learning. Almost one-fifth (17.7%) of participants indicated that they learned

practical and new information and knowledge from the diversity of courses in the ProAg program. e.g. "Getting a broad background in advanced agricultural subjects"; "I enjoyed the learning experiences in the ProAg program: varied subject matter, varied delivery technologies, varied locations, and varied instructors".

Participants were asked about the least enjoyable aspect (s) of the ProAg program. The majority (75.6%) of the participants provided an answer to this question. The most common themes that emerged were: travel and distance, limited number and difficulty of courses offered, lack of interaction, terminal degree, and time to complete the degree.

Travel and distance. Over one-quarter (27.7%) of the participants indicated that traveling to different sites and driving a lot of mileage to attend classes were the least enjoyment aspects of the ProAg program. " Had to drive to Fort Dodge, Sioux City, Ames, attended, Cherokee for most of the classes from Western Iowa." "Driving 85 miles one way to class."

Limited number and difficulty of courses offered. A small number (12.3%) of the participants indicated that the number of courses in the ProAg program was limited and difficult. Some participants commented about the lack of agronomy classes offered to ProAg majors. "Many times there were not as many choices of courses available as I would have liked, but I understand the economic and logistical

challenges of presenting more courses each semester." "Class offerings-like to see more variety. I realize interest may not be there for some areas, but if advertised more extensively maybe more students will register."

Lack of interaction. A few (7.7%) participants commented about lack of interaction with other students and instructors during their studies in the ProAg program. "Lack of interaction with other students." " Limited contact with teachers and other students."

Terminal degree. A few (9.2%) of participants indicated that one of the least enjoyable things about the ProAg program was the fact that it was a terminal degree program. Participants were disappointed because there were not able to continue their graduate studies for a PhD program in ProAg. " Inability to advance to an off-campus PhD program." " No ability to continue with graduate program after masters."

Time to complete the degree. Some (6.2%) participants indicated that the length of time it took to complete the degree was a downfall of the ProAg program. Some participants spent eight years completing their degree. "Took too long (8 years) to finish." " Length of time to complete degree."

Participants were asked to specify the three most useful things learned during the ProAg Program. Over three-quarter (75.6%) of the participants answered the

question. The most common themes that emerged from participants' comments were learning new skills and acquiring new knowledge.

Learning new skills. Approximately one-third (31%) of the participants indicated that communication, writing and computer skills were the most useful things they learned during the ProAg program. Participants indicated they learned a variety of skills such as improvement of their presentation skills using the power point program, written communication and conducting research professionally." How to do presentations, how to do oral speeches, communication skills." "Presentation skills beyond speech class, ability to juggle work and school."

Acquiring knowledge. Over half (69.2%) of the participants pointed out that they acquired new knowledge and information related to a variety of fields such as agriculture, statistics, and microbiology. Participants were able to expand their knowledge regarding: agriculture laws, animal science nutrition, horticulture, entomology, turf grass, pest control, agricultural marketing, soil fertility, grain drying, crop ecology, and weed management. "Learned a great amount of applicable technical knowledge." "Studied nutrition where I was weaker in my knowledge and previous education, government and political implication, enhanced my agronomic knowledge."

Table 9 displays the answers of participants regarding the value of money

provided through the ProAg program. Almost all participants (90.36%) indicated that they strongly agreed or agreed that the ProAg program provided value for money; the mean and standard deviation were (M = 3.16; SD = 0.72) respectively. Only (9.64%) of the participants indicated that they disagreed or strongly disagreed.

Table 9. The ProAg program provided value for money

Item	n	%
Strongly Disagree	4	4.82
Disagree	4	4.82
Agree	50	60.24
Strongly Agree	25	30.12

N=83

Table 10. Satisfaction with the ProAg program

Item	n	%
Very Dissatisfied	-	-
Dissatisfied	1	1.18
Satisfied	43	50.59
Very Satisfied	41	48.23

N=85

Table 10 displays data of participants' perceptions related to their satisfaction with the ProAg program. Almost all participants (98.82%) indicated that they were satisfied or very satisfied with the ProAg program; the mean and standard deviation were (M = 3.47; SD = 0.52).

In addition, participants were asked to specify whether the content of the

ProAg program addressed the stated objectives. Almost all (97.6%) of the participants who responded to this question reported that the program addressed all the objectives such as advanced training in science, technology, and business of the food system. Only (2.4%) of the participants did not respond to this question.

Table 11. Advice for the future of the ProAg program

Item	SD n (%)	D n (%)	A n (%)	SA n (%)	N**	*M****	*SD****
a. Offer more courses in a variety of agricultural areas.	2 (2.4)	5 (6.1)	54 (65.9)	21 (25.6)	82	3.15	0.63
b. Offer different majors (e.g. animal science, agriculture business, etc.) not just professional agriculture.	1 (1.2)	11 (13.4)	36 (43.9)	34 (41.5)	82	3.26	0.73
c. Offer a co-hort program.	7 (10.3)	20 (29.4)	25 (36.8)	16 (23.5)	68	2.74	0.94
d. Focus the program on a specific area.	6 (12.2)	24 (49.0)	9 (18.4)	10 (20.4)	49	2.47	0.96

Note: Scale SD= Strongly Disagree, D=Disagree, A=Agree; and SA= Strongly Agree
N=86
** Total number of participants who responded to this item.
***Means & Standard Deviation reflect participants who responded to this item.

Table 11 displays data on participants' advice for the future of the ProAg program. Almost all participants (91.5%) indicated that they strongly agreed or agreed that the ProAg program should offer more courses in a variety of agricultural areas. The mean and standard deviation were (M = 3.15; SD = 0.63). A good number (85.4%) of the participants strongly agreed or agreed that the ProAg program should offer different majors (e.g. animal science, agriculture business, etc.), not just professional agriculture for the ProAg program (M = 3.26; SD = 0.73). In addition, more than half (60.3%) of the participants strongly agreed or agreed that the ProAg

program should offer a co-hort program (M = 2.74; SD = 0.94). Approximately (38.81%) strongly agreed or agreed of the participants indicated that the ProAg program should focus on specific areas (M=2.47; SD=0.96).

Some participants who did select the fourth statement suggested that the program should focus on: Participants were asked to provide some suggestions regarding the future of the ProAg program. Two themes emerged from nineteen of the participants: Technical knowledge and New ProAg PhD program.

Technical knowledge. The majority of participants (63.2%) suggested that focusing on providing more technical knowledge to students is crucial to the future of the ProAg program. Participants suggested that the technical knowledge might include: techniques to measure grains, horticulture/turf management, agronomy, animal science, microbiology, agriculture executive management, and international agriculture.

New ProAg PhD program. Only ten percent of participants suggested offering a new doctorate degree similar to the Professional Agriculture Master's Degree program to help individuals who are interest in continuing their graduate studies beyond the Master's Degree.

Question 4. Identify if Master's Degree curriculum helped graduates advance in their work and career. Data collected through this question(s)

enabled the researcher to meet objective(s) # 1, 2, 3, and 4.

Table 12. The impact of the ProAg Master's Degree program

Item	SD n (%)	D n (%)	A n (%)	SA n (%)	N**	*M****	*SD****
a. New Knowledge.	1 (1.2)	2 (2.4)	48 (57.1)	33 (39.3)	84	3.35	0.60
b. New Skills.	1 (1.2)	11 (13.6)	42 (51.9)	27 (33.3)	81	3.17	0.70
c. Better understanding.	1 (1.2)	5 (6.0)	49 (58.3)	29 (34.5)	84	3.26	0.62
d. Enabling job improvement or better job.	3 (3.70)	13 (16.05)	32 (39.51)	33 (40.74)	81	3.17	0.83
e. Enabling a degree.	2 (2.5)	3 (3.75)	36 (45.0)	39 (48.75)	80	3.40	0.69

Note: Scale SD= Strongly Disagree, D=Disagree, A=Agree; and SA= Strongly Agree
N=86
** Total number of participants who responded to this item.
*** Means & Standard Deviation reflect participants who responded to this item.

Table 12 displays data on the impact of the ProAg Master's Degree program on graduates' lives. Almost all participants (96.4%) indicated that they strongly agreed or agreed that the ProAg program provided them with knowledge. The mean and standard deviation were (M = 3.35; SD = 0.60). A large number (92.8%) of the participants strongly agreed or agreed that the program provided them with better understanding (M = 3.26; SD = 0.62), while some participants (93.75 %) said they strongly agreed or agreed that the program enabled them to obtain a degree (M = 3.40; SD = 0.69).

Table 13 displays data on the different outcomes of the ProAg Master's Degree program. Almost all participants (85.7%) indicated that they strongly agreed or agreed that the ProAg program provided them with problem solving skills. The mean and standard deviation were (M = 3.06; SD = 0.68). Nearly all (83.3%) of the

participants strongly agreed or agreed that the program provided them with critical thinking skills ($M = 3.10$; $SD = 0.70$). Other (83.3 %) participants said that they strongly agree or agreed that the program provided them with self-confidence ($M = 3.14$; $SD = 0.75$).

Table 13. Outcomes of the ProAg program

Item	SD n (%)	D n (%)	A n (%)	SA n (%)	N**	*M****	*SD****
a. Effective work habits.	4 (5.5)	20 (27.4)	38 (52.1)	11 (15.0)	73	2.77	0.77
b. Critical thinking skills.	1 (1.3)	12 (15.4)	43 (55.1)	22 (28.2)	78	3.10	0.70
c. Decision making skills.	2 (2.7)	10 (13.1)	49 (64.5)	15 (19.7)	76	3.01	0.66
d. Ability to communicate effectively (writing & speaking).	2 (2.7)	16 (13.1)	39 (64.5)	17 (23.0)	74	2.96	0.75
e. Ability to work with others.	1 (1.4)	23 (31.9)	38 (52.8)	10 (13.9)	72	2.79	0.69
f. Self-confidence.	2 (2.6)	11 (14.1)	39 (50.0)	26 (33.3)	78	3.14	0.75
g. Problem solving Skills.	2 (2.6)	9 (11.7)	48 (62.3)	18 (23.4)	77	3.06	0.68

Note: Scale SD= Strongly Disagree, D=Disagree, A=Agree; and SA= Strongly Agree
N=86
** Total number of participants who responded to this item.
*** Means & Standard Deviation reflect participants who responded to this item.

Table 14 displays Participants data when asked to comment on the benefits of the ProAg studies. Almost all participants (84.2%) indicated that they strongly agreed or agreed that the ProAg program helped them to do their jobs more effectively. The mean and standard deviation were ($M = 3.08$; $SD = 0.74$). More than half of (68.5%) the participants strongly agreed or agreed that the program enabled them to get a better job ($M = 2.81$; $SD = 0.87$). A small group (55.3 %) of the participants said that they strongly agreed or agreed that they benefited from the program by having a raise in wages at their jobs ($M = 2.55$; $SD = 0.90$). Some participants (76.5%) strongly agreed or

agreed indicated that the ProAg program provided them with other benefits ($M = 3.12$; $SD = 0.93$).

Table 14. Benefits of the ProAg studies

Item	SD n (%)	D n (%)	A n (%)	SA n (%)	N**	*M****	*SD****
a. Promotion at work	7 (10.6)	20 (30.3)	25 (37.9)	14 (21.2)	66	2.70	0.93
b. Ability to get a better job	6 (8.6)	16 (22.9)	33 (47.1)	15 (21.4)	70	2.81	0.87
c. Ability to do job more effectively	3 (3.9)	9 (11.8)	43 (56.6)	21 (27.6)	76	3.08	0.74
d. Raise	9 (13.8)	20 (30.8)	27 (41.5)	9 (13.8)	65	2.55	0.90
e. Other	1(5.9)	3 (17.6)	6 (35.3)	7 (41.2)	17	3.12	0.93
f. None	6 (40.0)	3 (20.0)	5 (33.3)	1 (6.7)	15	2.07	1.03

Note: Scale SD= Strongly Disagree, D=Disagree, A=Agree; and SA= Strongly Agree
N=86
** Total number of participants who responded to this item.
*** Means & Standard Deviation reflect participants who responded to this item.

The main themes that emerged were satisfaction and self-confidence, and the gain of new knowledge.

Satisfaction and self-confidence. Over one-third (38.5%) of the participants indicated that they were satisfied with the ProAg program. The ProAg program was a good opportunity for personal development and it increased confidence in their abilities.

Gaining new knowledge. A number (30.8%) of the participants indicated that the ProAg program provided them with a gain of knowledge by keeping them abreast of the changing environment of agriculture, plus it refreshed and broaden their horizons about new aspects in agriculture in order to farm smarter.

Table 15. Benefits (if any) experienced immediately upon (or soon after) graduation

Item	SD n (%)	D n (%)	A n (%)	SA n (%)	N**	*M****	*SD****
a. Promotion at work	7 (13.21)	24 (38.9)	14 (26.4)	8 (15.1)	53	2.43	0.91
b. Ability to get a better job	7 (13.0)	21 (38.9)	17 (31.5)	9 (16.7)	54	2.52	0.93
c. Ability to do job more effectively	5 (7.8)	11 (17.2)	34 (53.1)	14 (21.9)	64	2.89	0.84
d. Raise	6 (12.2)	18 (36.7)	17 (34.7)	8 (16.3)	49	2.55	0.91
e. Other	3 (17.6)	2 (11.8)	7 (41.2)	5 (29.4)	17	2.82	1.07
f. None*	3 (33.3)	1 (11.1)	4 (44.4)	1 (11.1)	9	2.33	1.12

Note: Scale SD= Strongly Disagree, D=Disagree, A=Agree; and SA= Strongly Agree
N=86
* Reverse scored items
** Total number of participants who responded to this item.
*** Means & Standard Deviation reflect participants who responded to this item.

Table 15 shows data on the benefits of the ProAg studies experienced immediately upon or soon after graduation. More than half of the participants (75%) indicated that they strongly agreed or agreed that the ProAg program helped after graduation in doing their jobs more effectively. The mean and standard deviation were $M = 2.89$; $SD = 0.84$. Over one-quarter (48.2%) of the participants strongly agreed or agreed that the program enabled them to get a better job soon after graduation ($M = 2.52$; $SD = 0.93$). Some participants (51%) said that they strongly agreed or agreed that they benefited immediately after graduation from the program by having a raise in wages at their jobs ($M = 2.55$; $SD = 0.91$).

Some (69.6%) participants strongly agreed or agreed that the ProAg program provided them with other benefits right after graduation such as satisfaction and

professional development and networking. The mean and standard deviation were $M = 2.82$; $SD = 1.07$.

Satisfaction. Only 16.6% of the participants indicated that the ProAg program provided them with increased self-esteem and satisfaction.

Professional development and networking. Approximately 41% of the participants indicated that the program was a good opportunity to pursue an advanced degree for their professional development and job requirements. In addition, it was a chance to interact with other students and develop some industry relationships and networking. The same table (Table 15) shows that the sixth item, "None," was reversed because it denoted there were no benefits associated with the ProAg program.

Participants were also asked to identify the long-term benefits of the ProAg program. A large number (82.6%) of participants answered this question. Four themes emerged from participants' answers, which are as follows: new knowledge and information, earning a Master's Degree, satisfaction, and job/career.

New knowledge and information. Over one-quarter (35.2%) of the participants indicated that one of the long term benefits of the ProAg program was to acquire new knowledge, information, skills and abilities (e.g. analytical) in order to perform more effectively in their jobs. "Improved problem solving ability from a

broader base to technical knowledge in diverse areas;" "some agronomic work still useful in my basic work".

Earning a Master's Degree. The majority of participants (70.4%) indicated that the most important long-term benefit of the ProAg program was earning a Master's Degree from ISU, which would help in career advancement. "The fact that you have a Master's Degree is worth a lot;" "a Master's Degree looks good in my resume".

Satisfaction. Some participants (9.9%) indicated that the long-term benefits of the ProAg were to achieve self –satisfaction, confidence and pride, all of which resulted from completing the degree from ISU. "Lifetime achievement, industry credibility, self confidence, collaboration, & communication;" " feeling of personal satisfaction resulting from completion of degree".

Job/career. More than One-fifth of the participants (21.25%) indicated that the long-term benefits of the ProAg were job advancement and promotion in their career. In addition, the degree would help increase their chances to find better jobs and at the same time would help in obtaining a pay raise, promotion and higher income. "The ability to get a better job was incredible. The fact that my boss hired me because I studied at Iowa State University was an advantage;" "I have received multiple promotions since completing my ProAg degree."

Participants were asked also to provide comments about their study

experience in the ProAg program. More than half (52.3%) of the participants answered this question. Two themes emerged from participants' comments. The first theme was qualified professors and staff members, while the second was flexibility and quality of the program.

Qualified professors and staff members. One-fifth of the participants indicated that the professors who taught the ProAg program were excellent resources during their classes and as well as afterwards. One-fifth of the participants were impressed with the effects and quality of instructors. In addition, participants praised staff members' efforts and help in easing up the learning experience for students. "The individual professors I had contact with have all been excellent resources during their classes and afterwards;" "Very impressed with the high quality of the instructors and the accessibility to them".

Flexibility and quality of the program. The majority of participants (60%) enjoyed their learning experience with the ProAg program. They were pleased with the quality of classes and the flexibility of the program. "Excellent program;" "appreciated flexibility, tape, internet, program quality".

Table 16 indicates that the majority of participants (72.1%) indicated that the ProAg program rated fifty percent or higher in relevance to their career with a mean and standard deviation of (M=2.35; SD=1.14). This implies that the majority of

graduates agreed that the ProAg program including the curriculum, activities, skills and knowledge gained are at least 50% related to their jobs. Approximately four percent indicated that the program had low relevance to their career.

Table 16. Proportion for the ProAg program in relevance to alumni's career

Item	n	%
a. 100 %	15	17.4
b. 75-99 %	27	31.4
c. 50-74 %	20	23.3
d. 25-49 %	21	24.4
e. 0-24 %	3	3.50

N=86

Table 17. Skills improved through the ProAg program

Item	SD n (%)	D n (%)	A n (%)	SA n (%)	N**	*M****	*SD****
a. Written skills.	3 (3.5)	21 (24.4)	47 (54.7)	15 (17.4)	86	2.86	0.74
b. Analytical skills.	2 (2.3)	7 (8.1)	62 (72.1)	15 (17.4)	86	3.05	0.59
c. Written ability to cope with greater or more complex tasks at work.	2 (2.3)	18 (21.7)	46 (55.4)	17 (20.5)	83	2.94	0.72

Note: Scale SD= Strongly Disagree, D=Disagree, A=Agree; and SA= Strongly Agree
N=86
** Total number of participants who responded to this item.
*** Means & Standard Deviation reflect participants who responded to this item.

Table 17 displays data regarding participants' improvement in skills as a result of attending the ProAg program. The majority of participants (89.5%) were able to develop their analytical skills (*M*=3.05, *SD*=0.59). Some participants (75.9%) were able to improve their written language skills to cope with greater tasks at work (*M*=2.94, *SD*= 0.72). Other participants (72.1%) were able to improve their written

skills (*M*=2.9, *SD*=0.74).

Table 18 shows participants' feelings towards the off-campus ProAg program preparation for current jobs. More than fifty percent of participants (64.2%) who responded to the question mentioned that they had good or excellent preparation for their current jobs through the ProAg program with a mean and standard deviation of (*M*=3.74; *SD*=0.96). Few (4.8%) of the participants are not currently working while only (1.2%) of the participants indicated that they had poor preparation for their current jobs.

Table 18. Feelings towards the off-campus ProAg program preparation for current jobs

Item	n	%
Not Currently Working	4	4.80
Poor Preparation	1	1.20
Fair Preparation	25	29.8
Good Preparation	37	44.0
Excellent Preparation	17	20.2

N=84

Question 5. Identify barriers that affect off-campus students while earning their Master's Degree. Data collected through this question(s) enabled the researcher to meet objective(s) # 2, 3, and 4.

The following table (Table 19) shows participants' perceptions regarding the barriers encountered while earning their Master's Degree. The majority of participants (65.4%) strongly agreed or agreed that one of the main barriers was the

difficulty of balancing school, personal, and work responsibilities (*M*=2.65, *SD*=0.72). Other participants (61.2%) indicated that a main barrier was difficulty in accessing library facilities (*M*=2.73, *SD*=0.80), while a good number (61.4%) of participants thought that offering limited numbers of courses was a barrier (*M*=2.67, *SD*=0.67). From the same table (Table 19), it could be noted that both items "f" and "g"

Table 19. Barriers that affect off-campus students while earning their Master's Degree program

Item	SD n (%)	D n (%)	A n (%)	SA n (%)	N**	*M****	*SD*** *
a. Dealing with many different departments on campus was not easy.	10 (11.6)	52 (61.9)	15 (17.9)	7 (8.3)	84	2.23	0.77
b. The courses offered did not fit my needs.	9 (10.5)	64 (76.2)	11 (13.1)	-	84	2.02	0.50
c. It was difficult to balance school, personal, and work responsibilities.	6 (7.1)	23 (27.4)	49 (58.3)	6 (7.1)	84	2.65	0.72
d. Access to library facilities was not an easy task.	4 (4.7)	29 (34.1)	38 (44.7)	14 (16.5)	85	2.73	0.80
e. Prerequisites required for classes were unclear.	10 (11.9)	58 (69.0)	15 (17.9)	1 (1.2)	84	2.08	0.59
f. The cost of the program was affordable.*	1 (1.2)	7 (8.2)	67 (78.8)	10 (11.8)	85	3.01	0.50
g. Access and communication with other students was simple.*	4 (4.7)	32 (37.6)	41 (48.2)	8 (9.4)	85	2.62	0.72
h. A small number of courses were offered.	2 (2.4)	30 (36.1)	44 (53.0)	7 (8.4)	83	2.67	0.67
i. Scholarships were limited to a small number of students.	1 (1.5)	24 (36.4)	30 (45.5)	11(16.7)	66	2.77	0.74
j. Access to instructors was a difficult task.	10 (11.9)	57 (67.9)	15 (17.9)	2 (2.4)	84	2.11	0.62
k. ISU faculty did not understand my needs.	18 (22.0)	58 (70.7)	5 (6.1)	1 (1.2)	82	1.87	0.56
l. Accessing financial aid at the university was not an easy job.	6 (8.8)	27 (39.7)	31 (45.6)	4 (5.9)	68	2.49	0.74

Note: Scale SD=Strongly Disagree, D=Disagree, A=Agree; and SA=Strongly Agree
N=86
* Reverse scored items.
** Total number of participants who responded to this item.
*** Means & Standard Deviation reflect participants who responded to this item.

are reverse scored items because these two items were worded positively whereas the other items were worded negatively.

Question 6. Identify graduates' perceptions regarding teaching methods used in the off-campus Master's Degree program. Data collected through this question(s) enabled the researcher to meet objective(s) # 2, 3, and 4.

Table 20. Graduates' perceptions regarding teaching methods used in the off-campus Master's Degree program

Item	SD n (%)	D n (%)	A n (%)	SA n (%)	N**	*M****	*SD****
a. The teaching methods used in distance education are better than the traditional teacher, textbook and classroom method.	1 (1.3)	46 (58.2)	28 (35.4)	4 (5.1)	79	2.44	0.62
b. The distance education teaching methods allowed me to work independently at my own pace.	-	5 (6.3)	51 (64.6)	23 (29.1)	79	3.23	0.55
c. The instructor maintained dialogue among students in different sites to increase participation.	1 (1.3)	19 (24.4)	47 (60.3)	11 (14.4)	78	2.87	0.65
d. The distance education teaching methods were convenient to my lifestyle as a full time worker.	-	5 (6.1)	45 (54.9)	32 (39.0)	82	3.33	0.59
e. The professors were well qualified to teach the ProAg courses.	2 (2.4)	3 (3.6)	46 (55.4)	32 (38.6)	83	3.30	0.66
f. The professors did a great job in teaching the ProAg courses.	1 (1.2)	6 (7.3)	45 (54.9)	30 (36.6)	81	3.27	0.65
g. The professors did not know the subject matter for the ProAg courses.*	32 (38.6)	47 (56.6)	3 (3.6)	1 (1.2)	83	1.67	0.61
h. The professors were well trained to use and implement technology to teach the ProAg courses.	1 (1.3)	9 (11.4)	50 (63.3)	19 (24.1)	79	3.10	0.63

Note: Scale SD= Strongly Disagree, D=Disagree, A=Agree; and SA= Strongly Agree
N=86
* Reverse scored items.
** Total number of participants who responded to this item.
*** Means & Standard Deviation reflect participants who responded to this item.

Table 20 displays data on participants' perceptions regarding teaching methods used in the off-campus Master's Degree program. The majority of the participants (94%) strongly agreed or agreed that the professors were well qualified to teach the ProAg courses (M=3.30, SD=0.66). Almost all participants (93.9%) strongly agreed or agreed that the distance education teaching methods were convenient to their lifestyle as part time students (M=3.33, SD=0.59). Nearly every one (91.5%) of the participants indicated that they strongly agreed or agreed that the professors did a great job in teaching the ProAg courses (M=3.27, SD=0.65). In the same table (Table 20) item "g" was a reverse scored item because it was worded negatively while others sentences were positively worded.

Question 7. Identify graduates' perception regarding interaction with instructors. Data collected through this question(s) enabled the researcher to meet objective(s) # 1, 2, 3, and 4.

Table 21 shows participants' perceptions regarding interactions with instructors. The majority of the participants (85.5%) indicated that they always or sometimes had interaction with their professors while studying as off-campus students (M=3.13, SD=0.68). Some participants (85%) indicated that the professors always or sometimes interacted with off-campus students during the live lectures (M=3.29, SD=0.78), while others (74.4%) thought they always or sometimes received

regular feedback from their professors (*M*=3.06, *SD*=0.79). The majority of participants (76%) indicated that professors never or rarely interacted with off-campus students (*M*=1.90, *SD*= 0.86).

Table 21. The degree of interaction with instructors

Item	Never n (%)	Rarely n (%)	Sometimes n (%)	Always n (%)	N**	*M****	*SD****
a. I had interaction with my professors while studying as an off-campus student.	1 (1.2)	11 (13.3)	47 (56.6)	24 (28.9)	83	3.13	0.68
b. I contacted my professors regularly during the program.	6 (7.3)	28 (34.1)	34 (41.5)	14 (17.1)	82	2.68	0.84
c. I received regular feedback from my professors.	1 (1.2)	20 (24.4)	34 (41.5)	27 (32.9)	82	3.06	0.79
d. The professors interacted with off-campus students during the live lectures.	2 (2.5)	10 (12.5)	31 (38.8)	37 (46.3)	80	3.29	0.78
e. On-campus students interacted with off-campus students.	30 (38.0)	30 (38.0)	16 (20.3)	3 (3.8)	79	1.90	0.86

N=86
** Total number of participants who responded to this item.
*** Means & Standard Deviation reflect participants who responded to this item.

Table 22 shows participants' perceptions regarding interactions with off-campus students. The majority of participants (94.2%) indicated that they strongly agreed or agreed that interactions between themselves and their professors were helpful (*M*=3.25, *SD*=0.62). Some participants (70%) indicated that they strongly agreed or agreed that interaction with other distance education students was important for them (*M*=2.87, *SD*=0.73). The majority of participants (70%) strongly disagreed or disagreed that interaction with on-campus students was important for

them (*M*=2.06, *SD*=0.75). For additional information related to interaction with on-campus students (see appendix C, Table B).

Table 22. Interaction with off-campus students

Item	SD n (%)	D n (%)	A n (%)	SA n(%)	N**	*M****	*SD****
a. Interaction between my professors and myself was helpful.	2 (2.4)	2 (2.4)	54 (63.5)	27 (31.8)	85	3.25	0.62
b. Interaction with on-campus students was important to me.	18 (22.2)	42 (51.9)	19 (23.5)	2 (2.5)	81	2.06	0.75
c. Interaction with other distance students was important for me.	3 (3.7)	19 (23.2)	46 (56.1)	14 (17.1)	82	2.87	0.73

Note: Scale SD= Strongly Disagree, D=Disagree, A=Agree; and SA= Strongly Agree
N=86
** Total number of participants who responded to this item.
*** Means & Standard Deviation reflect participants who responded to this item.

Table 23 displays information about the different types of communication used by participants to interact with their instructors. The majority of participants (90.7%) indicated that they preferred using the phone to communicate and correspond with their instructors. Most participants (83.7%) used meetings to contact their professors while a large number of participants used mail (64.5%) and email (54.7%). Few (5.8%) of the participants indicated that they interacted with their professors via ICN, field day and face-to-face contact. The researcher supposes that this has changed with the availability of new technology such as online chat with facilitated more communication and interaction among groups.

Table 23. Types of communication to interact with your instructors

Item	Rank Order of Responses	% No	% Yes
a. Email	4	45.3	54.7
b. Phone	1	9.3	90.7
c. Mail	3	36.0	64.0
d. Meetings	2	16.3	83.7
e. Other	5	91.9	8.10

N=86

Participants were also asked to identify the type of interaction mode they preferred to use with their instructors. The majority of participants (88.4%) answered this question. Many participants (45%) preferred to use email to contact their instructors; other participants (43.4%) preferred to use the phone to interact with their instructors or use meetings (face to face, class time).

Finally, participants were asked if they would recommend the ProAg program in this mode to a friend. A majority of participants (93%) indicated that they would recommend the program while a small number (3.5%) of the participants did not respond. The majority of participants cited that the main reason was the flexibility of the program. Many participants (26.1%) think that the ProAg program is an excellent and flexible program, which allowed them to earn a Master's Degree while maintaining a full time job and raising a family. "Flexible program & courses, take courses to fit your work schedule, excellent program." Some participants (11.3%) indicated that the ProAg program helped them advance

and grow in their professional career, promoted shortly (6 months) after graduation. "Allowed me to get my degree while working full time. I was promoted within 6 months of finishing up." Few (10%) of the participants recommended the program because of its quality and reputation of ISU. "It is a quality program that provides another mode of personal and professional growth." Only two participants (2.5%) preferred to have a doctorate program in agriculture on-line/distance like Texas A&M and Texas Tech and to have student interaction on campus on Saturdays mornings. "I would like to see a doctorate program in agriculture on-line/distance like Texas A& M and Tech." Finally, only (1.25%) of the participants preferred recommending an MBA from Drake or the University of Iowa instead of the ProAg program. "I would recommend an MBA from Drake or U of I".

CHAPTER V. SUMARY, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

This chapter provides a summary of the study, makes conclusions based on the findings of the study, and offers recommendations for further research on the ProAg off-campus Masters' Degree program at Iowa State University. The chapter will cover different sections including: (a) purpose, (b) objectives, (c) methods, (d) findings, (e) conclusions, and (f) recommendations.

Purpose

The idea behind this study was to analyze the current Professional Agriculture (ProAg) Master's Degree program by providing information about Iowa State University alumni's description of practices used, which could serve in improving the quality of the program. The study could also serve as a guideline when planning, designing and delivering future off-campus Master's Degree programs in Iowa State University.

The study was guided by the following Objectives:

1. Provide an accurate illustration of the current off-campus Master's Degree programs offered from the College of Agriculture at Iowa State University.
2. Enable administrators and staff members at Iowa State University to readjust

and revaluate the program to meet new demands in the marketplace.

3. Provide valuable information about services and support given to students.
4. Help Iowa State University in offering future off-campus Master's Degree programs from the College of Agriculture.

In order for these objectives to be met, the following research questions were examined.

Research Questions

Many research questions arose in terms of the objectives of this study, such as:

1- What are graduates' perceptions regarding practices in the ProAg off-campus Master's Degree program (e.g. admissions, financial aid, academic advising etc.)?

2- What are the reasons that encouraged graduates to participate in the ProAg Master's Degree program?

3- Were graduates needs and expectations met or exceeded?

4- Did the ProAg Master's Degree curriculum help graduates advance in their work and career?

5- What were the barriers affecting off-campus students while earning their degree in the ProAg Master's Degree program?

6- What are graduates' perceptions regarding teaching methods used in the off-campus Master's Degree program?

7- What are graduates' perceptions regarding interaction with instructors?

8- What are graduates' demographic characteristics?

Methods

A descriptive survey design was used to conduct this study. The population of this study consisted of 106 alumni from Iowa State University who completed their ProAg off-campus Master's Degree program between the years of 1982-2004. Alumni's addresses were obtained from the Department of Agricultural Education and Studies. All alumni were contacted to fill out a self-administrated survey on May 27th , 2004. The majority of alumni (81.1%) completed and returned the survey. The survey itself consisted of seven sections in addition to the demographic information. The sections were as follows: Section 1 focused on graduates' perception regarding practices in the ProAg off-campus Master's Degree program. Section 2 asked participants to select reasons that encouraged them to participate in the ProAg Master's Degree program. Section 3 asked participants to identify if their needs and expectations were met or exceeded in regard to their professional career and social expectations. Section 4 focused on questions dealing with skills gained while studying in the ProAg Master's Degree program. Section 5 dealt with barriers that affected graduates as off-campus students while earning their Master's Degree. Section 6 asked graduates to rate their perceptions regarding the teaching methods

and quality of instruction in the ProAg program. Section 7 focused on graduates' perceptions regarding their interaction with their instructors.

The data collected from participants were coded, entered, and analyzed using the Statistical Package for the Social Sciences, SPSS (Agresti & Finaly, 1997). The SPSS was used to compute the frequencies, means, standard deviations, and range in order to obtain the findings.

Findings

Based on results obtained from the statistical analysis the data could be summarized according to the following categories: benefits of the ProAg program, future of the ProAg program, reasons to join the program, positive and negative aspects of the program as considered by the alumni, interaction and communication, satisfaction with the ProAg program, participants' work status, ethnicity of participants, barriers facing students in the ProAg program and teaching methods.

1-Benefits of the ProAg program

- The majority (96.4%) of participants indicated that the ProAg program provided them with new knowledge, analytical skills (89.5%) and problem solving skills (85.7%).
- A large number (82.6%) of participants indicated that the long–term benefits of the ProAg program were: earning a Master's Degree (70.4%), knowledge

and information (35.2%), job/career (21.25%), and satisfaction (9.9%).

- The majority (72.1%) of participants indicated that the ProAg program was 50% or higher in relevance to their career. This means that the way the ProAg program is structured and organized (including the curriculum, skills, knowledge etc.) fits the needs of the majority of graduates' and matches 50% or higher with their jobs.
- Most (64.2%) of the participants indicated that they felt that the ProAg program provided them with good or excellent preparation for their current jobs.
- More than half (52.3%) of the participants indicated they liked their study experience because the program had qualified professors and staff members, and because of the flexibility and quality of the program.
- Participants reported that some other benefits of the ProAg were satisfaction and self-confidence (38.5%) and professional development and networking (41%).

2-Future of the ProAg program

- A majority (97.6%) of the participants reported that the program addressed all the objectives such as advanced training in science, technology, and business of the food systems.

- The majority (91.5%) of the participants also reported that the ProAg program should offer more courses in a variety of agricultural areas. In addition, participants indicated that the ProAg program should offer a wider variety of majors (e.g. animal science, agriculture business, etc.).
- Almost all (93%) of the participants reported that they would recommend the ProAg program to a friend due to its flexibility, help in professional and career development, the quality of the program, and the reputation of Iowa State University.
- More than half (60.3%) of the participants indicated that the ProAg program should offer a cohort program.
- Only (38.8%) of the participants indicated that the ProAg program should focus on a specific area like technical knowledge (63.2%) and should start a new ProAg PhD program (10%).
- Only (1.25%) of the participants did not recommend the program to a friend because they prefer other types of Master's Degree programs like the MBA degree from Drake University.

*3- **Reasons to join the program***

- The majority (86%) of participants indicated that their main reason to participate in the ProAg Master's Degree program was for self-improvement

and personal satisfaction. Participants indicated that time, convenience, and appropriate schedule were among the reason for choosing the off-campus Master's Degree program because they were not able to take time off for on-campus study.

- Other participants (73.3%) joined the program because of the reputation of the College of Agriculture at Iowa State University or (62.8%) for the university itself. In general, the majority of participants thought the amount and quality of work was adequate for their training and education experience. For some, the learning experience was either good or excellent, with (53.1%) and (40.7%) respectively, and few (6.2%) responded that it was a fair experience.

4-Positive and negative aspects of the program as considered by the alumni

Positive aspects

- Almost all (91.9%) of the participants expressed things they liked about the program such as interaction (46.8%), the flexibility (29.1%), and learning (17.7%).
- Nearly all (90.36%) of the participants indicated that the program was a good value for the cost.
- Over three-quarters (75.6%) of the participants indicated that the most useful

things learned during the ProAg program were acquiring knowledge (69.2%) and learning new skills (31%).

- The majority (76.2%) of participants indicated that the ProAg program met their professional career expectations, while some (23.8%) indicated that the program exceeded their expectations. The program was a good opportunity to build and strength participants' professional networking with on and off campus students who maintain full-time jobs. This was via exchanging ideas, thoughts about problems facing the profession and field of expertise which is useful for many adults' learners.
- The majority (72%) of the participants indicated that the ProAg program met their social expectations, while (22%) of the participants indicated that it exceeded their expectations. The program allowed graduates' to make new friendships, visit with old friends and classmates. It was also a good opportunity to meet other people with similar backgrounds who share the same goals.

Negative aspects

- The majority (75.6%) of the participants indicated the least enjoyable aspect(s) of the program were: travel and distance (27.7%), limited number and

difficulty of courses offered (12.3%), lack of interaction (7.7%), terminal degree (9.2%) and time to complete the degree (6.2%).

- More than one-third (35.4%) of the participants indicated that they did not have access to financial aid services. More than one-third (35.3%) of the participants indicated that the ProAg program was not well advertised.

5- Interaction and communication

- Almost all (95.3%) of the participants reported that interaction between their professors and themselves was helpful.
- Most (90.7%) of the participants indicated that the phone was the most common type of communication used to contact and correspond with their instructors.
- The majority (85.5%) of participants indicated that they always or sometimes had interaction with their professors while studying as off-campus students.
- Most (45%) of the participants preferred using email to interact with their instructors, followed by use of the phone.

6-Satisfaction with the ProAg program

- Most of the participants were satisfied with practices implemented in the ProAg off-campus Master's Degree program including: registration procedures for courses (97.7%), admissions services (93%), access to advising

services (89.4%) and reasonable tuition fees (96.5%).

- On the other hand, more than one-third (35.3%) of the participants indicated that they were not satisfied with the ProAg program because it was not well advertised and they did not have access to financial services (35.4%).

*7- **Participants' work status***

- The majority (79.1%) of participants reported that they currently maintain a full-time job.
- Approximately one-third (32.6%) of the participants indicated that their current occupation was farming, agribusiness (20.9%), agricultural extension (18.6%), U.S government (5.8%), State government (2.3%), and other jobs (34.9%).

*8-**Demographics of participants***

- The majority of respondents (83.7%) were males and the remaining (16.3%) were females.
- Their ages ranged from 26 to 74 years old with a mean of (M=49.47).

  Their ethnicity was mainly Caucasian (95.3%), while the rest were Latino/a (3.5%) and (1.2%) Caucasian/Hispanic.

*9-**Barriers***

- The majority (65.4%) of participants indicated that they strongly agree or

agreed that there were some difficulties in balancing school, personal, and work responsibilities.

- The majority (61.2%) of the participants indicated that accessing the library facilities was not an easy job.
- The majority (51.5%) felt accessing financial aid at the university was not easy job.

10-Teaching methods

- The majority (94%) of participants reported that the ProAg professors were qualified to teach.

Conclusions:

Based on the findings of this study, conclusions were made under the following themes: Occupation and diversity of respondents, marketing and advertising, financial aid, ProAg practices, reasons for participation, barriers, skills and knowledge gained, interaction and communication in the ProAg program, future of the ProAg program. At the same time the following recommendations are based on some assumptions related to Iowa State University:

Assumption # 1: The College of Agriculture is interested in expanding great resources to support distance education and lifelong learning.

Assumption # 2: The market of individuals interested in graduate degrees in

general agriculture is expandable.

Assumption # 3: There is a high demand to join the off-campus Master's degree program from adults' learners in foreign countries.

Conclusion # 1: ***Occupation and diversity of respondents***

The demographic characteristics of the respondents indicated that the majority were Caucasian males with an average age of 49.5. Farming was the main occupation for many respondents besides agribusinesses, State and government jobs. Moreover, males were always the majority of students since the ProAg began in 1979. For additional information regarding diversity issue(s) in the ProAg (see appendix C, Table A).

A. Recommendation

a. Encourage more people who farm and work in other agricultural fields to join the ProAg program. This step could be accomplished through promoting the program among farmers' organizations and associations around the nation and worldwide (e.g. Iowa Pork Producers Association). In this case, the Internet could be used as a fast and effective medium to promote the program, in addition to printed materials. The recruiting efforts should be targeting both private and public sectors (e.g. State and Federal) as part of the promotion plan for the ProAg program. While promoting the program, it is important to emphasize to different parties the

immediate and future benefits that the completion of the program would provide, benefits which would impact both the individuals and the businesses.

b. Due to the fact that the majority of the participants are males with a minor representation of females in the program, Iowa State University could encourage more ethnic groups and the underrepresented gender (females) to join the program through cooperating with national and multinational organizations (e.g. FAO, World Bank, Fulbright Program). This cooperation could be achieved through offering annual awards (e.g. Scholarships) mainly to females and other ethnic groups from developed and undeveloped countries based on their academic achievements. The ProAg program administrators and faculty members should consider writing grant proposals to the USAID and USDA to sponsors some students who cannot afford to participate.

B. Implications

a. As a result of recruiting more students (clients) from various sectors in different states and around the world might join the program . The ProAg program would benefit directly by increasing the total enrollment rate and indirectly by building on the reputation of Iowa State University as a leading research institution in locations around the nation and the globe. Many businesses would experience the benefits of the ProAg program in their employees' performance, which would

motivate personnel in charge to invest more in retraining their employees in order to sharpen their knowledge and skills.

b. Establishing ties with both international and local organizations and businesses would impact the program not only in the near future, but also in the long run. The ProAg program would be given more financial aid to support students, which would increase the overall enrollment. In addition, the program would spread globally with the efforts conducted through the cooperation with multinational organizations. Participants who join the ProAg program would have more diversified backgrounds, compared to the current situation where only two students who joined the program were from a foreign country and a U.S. territory. Thus, it is critical for the ProAg administrators to work on developing and strengthening these ties in order to serve the future strategic plan of the ProAg program: to be known globally and to establish Iowa State University as a leading Land-Grant institution.

Conclusion # 2: ***Marketing and advertising***

Some participants felt that the ProAg program was not well advertised.

A. Recommendation

a. An evaluation study of the current implemented Iowa State University marketing strategies could yield good indicators about further steps needed for

improvement. In parallel to these efforts the ProAg administrators should adopt new marketing and advertising strategies to promote the program. According to Kotler and Fox (2003) "marketing is the analysis, planning implementation, and control of carefully formulated programs designed to bring about voluntary exchanges of values with target markets to achieve institutional objectives. Marketing involves designing the institution's offerings to meet the target markets' needs and desires, and using effective pricing communication, and distribution to inform, motivate, and service these markets" (p.6). This definition indicates the importance of marketing in contributing to the university's success by identifying the relationship it has with its customers and its end products or services.

When developing the new marketing strategies, the university should take into account the new needs of customers returning to schools. These needs must be identified and satisfied in order for the university's objectives to be achieved. In this case, the purpose of implementing a marketing strategy would be to attract customers (learners) by serving their needs through offering several services such as strong academic program, financial aid, and career advice. In addition, marketing would help the ProAg program survive and prosper through serving their markets with greater effectiveness. Thus, administrators of the ProAg program at Iowa State University should work as a team with a marketing organization orienting and

targeting various clients to meet their needs while maintaining a suitable and convenient environment of services and continuing improvement.

Once the client's needs are identified, promotion of the ProAg program should be done via public relations, personal contact, and other activities.

The majority of universities and educational institutions are using various communication channels such as public relations and marketing materials to advertise their programs. Public relations is a well known technique to attract and get audience's attention in a specific product (program) through airing and broadcasting free presentations in radio and TV stations and other media. While advertising represents a service that promotes goods, services, thoughts and ideas of input or output products. Charges for the advertising may vary based on the amount of work and effort needed and invested in the job and on the type of media used to advertise the product including printed materials (newspapers, posters, brochures, magazines), broadcasted and electronic materials (Radio, TV, & Internet) (Kotler & Fox, 2003).

Thus, administrators in the ProAg program should take the responsibility to promote and advertise the program effectively to accomplish the desired results and objectives of the university. Mass media advertising could be considered as a support mechanism for the fundamentals of sales, publicity and professional

promotion. A continuous theme should link and associate all promotional elements to communicate the unique characteristics and advantages of the university and the ProAg program. In addition to the previous promotion techniques, Mazzorol and Soutar (2001) point out that "the use of testimonials in advertising education services improves understanding and may help prospective students better evaluate an institution's programs and operations" (p.95).

b. The marketing plans should not focus on local "customers" in the Midwest region and the U.S. only; the marketing plans should cross the borders and go globally. An academic institution could reach a distinguished and prestigious international reputation when it maximizes the usage of its available resources, assets and skilled personnel. At this point the educational institution could be labeled and categorized as an organization with "distinctive competencies" which would provide it with advantageous status in the market. Therefore, it is critical for the success of any educational organization to introduce and implement new strategies and tactics that will help institutions' tackle both the local and global markets, while at the same time reflect its mission, vision and potentials (Mazzarol & Soutar, 2001, p.107). Therefore, developing new strategies that address the institutions' external and internal markets, communicate, and reinforce its image and capabilities are recommended.

c. For those who are about to implement a distance education program, special attention should be given to market the end product of the program. Future planning should include marketing plans that encompasses users' needs and wants (e.g. marketing plan that includes in ProAg advisory committee & an alumni marketing plan).

B. Implications

a. The ProAg administrators and staff would gain more skills and knowledge from applying new marketing strategies through training sessions and experts in media and communication. This step would also benefit the institution (Iowa State University) in diffusing a good image among students around the world about the nature and quality of education at the university, and especially in the ProAg program. In addition, conducting an evaluation study will help in assessing and identifying present and future potentials for market expansion (locally and globally).

b. As a result of implementing the new marketing and advertising strategies the ProAg program is expected to witness an increase in the total enrollment rate from other ethnic backgrounds and nationalities including local students from the U.S. The ProAg administrators would be more experienced and aware of international customers' needs while studying overseas, which would help in better

meeting their needs.

Conclusion # 3: Financial aid

Some participants indicated that they did not have access to financial aid services.

A. Recommendation

a. The financial aid department at Iowa State University in cooperation with the ProAg administrators should find the best ways to inform new off-campus students about possible alternatives to apply to financial aid. Johnson (2003) mentioned that financial aid information services should be presented in a simple and clear format, easy to retrieve, reliable and understandable. In a lot of cases, students base their decisions to select certain educational institution on the accessibility of finical aid. Online financial aid information should be available and accessible to all (on- and off-campus) students including different steps necessary to apply, electronic forms, deadlines, regulations, rules and policies governing this issue.

Off-campus students in the ProAg program are eligible to apply to the Federal students Aid (FAFSA) through the following link www.studentaid.ed.gov. Unfortunately the financial aid link posted on the College of Agriculture website is not working properly and would, therefore, require daily maintenance of the site

by the ProAg administrators.

b. As part of Iowa State recruiting efforts the ProAg administrators should offer incentives and scholarships for learners with high levels of achievement (e.g. GPA) for both local and international scholars. The scholarships could be offered through the government or private businesses and organizations.

B. Implications

a. Providing easy access to financial aid information and services would facilitate students' application process, which would impact the overall enrollment. In addition, updating and maintaining online financial information posted on both the AGEDS and College of Agriculture websites would result in fewer complaints and more satisfaction among learners who apply for the ProAg program and the financial services.

b. Establishing more ties with businesses and other sponsors would help support many students in the ProAg program. These ties would provide more resources to sponsor international learners who cannot afford high tuition costs. Moreover, businesses would be more interested in sending their employees to school to learn new skills and knowledge from the ProAg program.

Conclusion # 4: ProAg practices

Participants were satisfied with practices implemented in the ProAg program

such as: registration for courses, admission services, access to advising.

A. Recommendation

a. Continue to excel in providing good administrative service in various areas of the ProAg program. For example Johnson (2003) underlines the importance of student support services including online registration, which requires the planning, designing, and establishment of a practical, efficient and user friendly computed system that enables students to register easily. Links should be provided to students in the ProAg program explaining different procedures, including an online catalog and help information.

b. Coordination and communication with other departments in the College of Agriculture and other colleges should be fast and efficient to save time of both administrators and students. Meanwhile, the students' help center should be connected to the ProAg administration to solve any problems encountered by students.

c. Offer a toll-free telephone number to answer students' questions in addition to any other technological tools (e.g. email). Picciano (2001) stated that the "most successful distance learning providers have a help line that is dedicated to distance learners and staffed many hours during the day. If distances between the students and providers are extensive, toll-free "800" numbers are made available"

(p.100). The phone call center would help in answering questions related to academic advising, technical support, and orientation services. This service would help by addressing questions that could be answered without the direct involvement of the ProAg faculty members, thereby saving the time and effort of faculty and reducing part of their workload by directing students' phone calls to specialist(s) (e.g. Computer programmer).

d. Implement a feedback mechanism that allows students to register their thoughts and comments about different components of the program. The feedback could be through filling out an online evaluation form, which would permit administrators/faculty members to receive feedback in a timely manner. The evaluation forms could cover the different courses offered through the ProAg program as well as the program itself.

B. Implications

a. The simplicity and accessibility of various online services would be expressed in students' satisfaction with the program, which would be reflected in promoting the program and expanding the reputation of Iowa State University. Schwitzer, Ancis and Brown (2001) said that the level of satisfaction with student services could be directly related to several reasons such as the behavior, manners of employees and administrators in charge of off-campus students' services, user

friendly web links and site navigation for course registration and enrollment procedures, access student help, and rapidity of shipping and delivery. Another issue that affects off-campus student satisfaction is that class materials, educational bureaucracy and routine procedures and paperwork are sent and received punctually between the university and the student.

b. Establishing ties with other departments will result in serving all students in a quick and efficient manner, which would add to the advantages of the ProAg program.

c. The toll-free phone service would enable students to contact administrators or program coordinators on campus directly to ask about particular service(s).

d. The feedback mechanism would provide faculty members with accurate and immediate feedback about courses and services provided through the program, which would help in adjusting specific task(s) as requested or needed.

Conclusion # 5: Reasons for participation

The main reason for participants to join the ProAg program was for personal satisfaction and was due to the reputation of Iowa State University. In addition, participants were satisfied with the program because it helped them meet their social and professional expectations. Moreover, participants were satisfied with learning experience due to quality and qualified instructors, as well as the flexibility

of the program. Participants reported that instructors were well trained and qualified to teach the ProAg program.

A. Recommendation

a. Continue to provide quality services and education to end-users to maintain the good reputation of Iowa State University. For example Schwitzer et al. (2001) said in addition to faculty members' teaching responsibilities they should provide some counseling and guiding actions with their students to maintain good ties and relationships. This could be accomplished through analyzing learners' willingness to study and acquire knowledge, monitoring their academic advancement, improvement toward achieving program goals and outcomes, identifying obstacles that influence individuals' learning, encouraging and confronting learners to move forward through additional hard work and assessing learners' progress in non-conventional environment.

b. Encourage participants to access the alumni students' association network and inform them about professional and career employment fairs and opportunities to help them meet their social and professional networking.

c. Provide in-service training sessions to all faculty members to update their knowledge and familiarize them with the latest technologies used to deliver distance programs. Bates (2000) indicates the importance of training faculty members on the

use of technology for teaching. He also emphasizes that training itself should be in response to the changes in students' needs and in the transformation of the milieu where educational institutions are operating. It is important also to underline that faculty members need to recognize and comprehend the new advances in technology to diversify their teaching and learning methods. Bates (2000) added that for training faculty and professional development to be effective it is crucial to have a common training component and strategy to sustain any teaching activities with technology on a timely basis (e.g. Attend an annual training session on the use and implantation of technology). In the same sense, Picciano (2001) states that well-qualified and trained technical staff is important in the beginning of delivering and offering courses, as well as during the period of the program. Faculty's professional training and development are essential to maintain the quality and desired outcomes of a distance education program. It could be organized through workshops, seminars where staff members could have hands-on activities (e.g. new ways in offering online programs).

d. Maintain the flexibility of the program through offering various options and choices for courses to meet the needs of the majority of professional workers (e.g. evening and/or Saturday's classes). Bates (2000) stated that adults' off-campus learning programs should be flexible to meet their needs as part-time learners, with

loaded schedules, limited time, and family responsibilities. In addition, due to new computer technology and communication, technologies are rapidly changing and enhancing the capacity for flexible delivery. Delivery of programs could be synchronously or asynchronously to fit the needs of participants. Thus, the ProAg administrators must take into consideration the best and effective ways to deliver courses of the program (see appendix C).

B. Implications

a. The quality and reputation of Iowa State University would attract more students to enroll in the program to pursue a Master's Degree and students would express their satisfaction with the ProAg staff as well.

b. Building a social and professional network would satisfy both professional and social expectations of participants. This network could facilitate hiring and employing the ProAg graduates and, at the same time, expand communication channels among all graduates.

c. Updating and training faculty members would improve the overall quality of teaching in the program, as well as enhancing their teaching and professional development. Picciano (2001) states that a "staff development programs should be planned as a continuous process, primarily because distance learning technologies are constantly changing and new software are regularly being introduced (p.117).

d. Providing a flexible program would encourage more students who work full time jobs and have family responsibilities to enroll in the ProAg program, which would meet the needs and convenience of participants.

Conclusion # 6: Barriers

Participants reported that the program had some barriers like balancing school, personal and work responsibilities, in addition to travel and distance, lack of interaction, limited and difficulty of courses offered, difficulty accessing library facilities and unaffordable cost.

A. Recommendation

a. Offer courses at convenient times (after 5:00 pm) that fit most learners' schedules. For example when courses are offered synchronously (e.g. videoconferencing or ICN).

b. Emphasize the importance of learners' independent learning, which is essential in distance education settings.

c. When offering synchronous courses via ICN, the ProAg administrators should try to provide the closest sites near learners' residence areas in cooperation with local community colleges and schools. For example in the case of providing the program locally in Iowa the ICN could be used as an alternative instead of using the satellite videoconferencing where it is more suitable for global broadcasting.

d. Encourage faculty members to interact more with off-campus students. This could be synchronously (e.g. face-to face, videoconferencing, chat rooms, ICN) or asynchronously (e.g. email, videotapes).

e. The ProAg administrators and faculty members should make sure that a large variety of courses are offered each semester for all learners.

f. On campus tutors or teaching assistants could provide additional assistance for learners who might need help with their courses. Tutors could answer questions by phone and respond, if needed, via email. Learners could go to campus to meet in person with tutors to clarify certain aspects or difficult materials. Johnson (2003) pointed out to online teaching as an alternative to offer off-campus learners with teaching and learning support. Asynchronous (e.g. delayed time via bulletin boards) and synchronous (e.g. real time chat) technologies could be used by instructors to meet and communicate online with their learners. In addition, videoconferencing could be used to organize and deliver online classes with focus on specific subject matter or theme or without focus for instance using the Internet from the house and other online services. In this case learners could have the option either to participate in the workshops online or on-campus.

g. The financial office could revise regulations related to in state and out of state tuition and fees to reduce the effect of this barrier. In addition, conducting a

research study about the eligibility of local versus international off campus students to access to financial aid will help decisions makers and inform students about different options.

H. Help off-campus students have access to library facilities by providing more flexibility in checking out e.g. books and learning materials, and posting more online documents, links, and publications.

B. Implications

a. As a result of choosing suitable course timing, participants would be more satisfied with the program because it would meet their learning needs according to their lifestyle as adults with responsibilities.

b. Self-directedness is one of the characteristics of successful adult learners. Adults should take the initiative and responsibility of their own learning as independent learners, since the teaching style in distance education settings is learner-centered. Understanding the importance of this component in the beginning of the semester will help learners develop their learning styles and progress during the program.

c. Learners will save their time traveling back and forth to attend lectures and will devote this time to their study.

d. Interaction is critical in the success of any distance program. Interaction

enables off-campus students to share their ideas and thoughts with others on-campus and in other parts of the world. Providing regular interaction increases students' interest in the program and reduces the drop out rates.

e. Offering a variety of courses instead of limited number will meet students' needs in a wide range of areas (e.g. horticulture, international trade, agribusiness, finance, sustainable agriculture, global economy, marketing and adverting strategies). Offering a wide variety of courses would enable students to choose courses based on their needs and preferences, which would help them, finish their degree in a shorter timeframe.

f. Assigning teaching assistants or tutors to provide assistance to learners would save the time of faculty members and provide quick feedback for learners about course materials. As a result, this would better serve the end-users of the ProAg program. In addition, it will introduce participants to course contents, mainly in the start of the semester. At this point in the program students would need some guidance and outlines about schedules, syllabi, assignments, resources required and forms of support available.

g. The revision of in and out of state tuition and regulation could benefit out of state students who do not work and reside in Iowa State.

H. Off-campus students will have more access to library facilities which will

reduce their complaints.

Conclusion # 7: Skills and knowledge gained

The program provided participants with several competencies such as problem solving and analytical skills, and technical knowledge in a variety of agricultural areas, which helped them later in doing their jobs effectively.

A. Recommendation

a. Continue to provide these competencies in the technical knowledge and other skills through the ProAg program.

b. Provide videotapes or CD's or DVD's or Web based video streaming that explain skills required to accomplish certain kind of jobs in agriculture. The videos and other technologies would allow participants to have some hands-on activities related to materials covered in the coursework during the ProAg program.

B. Implications

a. Providing learners with needed skills provided through the ProAg program would help them conduct their job effectively.

b. The videotapes and other asynchronous methods would help off-campus students to understand the required skills to perform their job professionally at their own pace and time.

Conclusion # 8: Interaction and communication in the ProAg program

Participants sometimes complained about interaction and sometimes praised it with their instructors. Participants never or rarely contacted their professors regularly during the program. Interaction with on-campus students was not seen as an important issue/component by off-campus students. Participants preferred the email to contact their professors.

A. Recommendation

a. As mentioned in chapter two, interaction is an important component for the success of any distance program. Thus, to avoid complaints about lack of interaction among students and/or faculty members the researcher recommends making some adjustments on the interaction model explained by Anderson and Garrison (1998). As (Figure 3.) describes, the model with the new modifications that could be seen is what could be called "pre-interaction" as an intervention. For a successful interaction model, this intervention should take place prior to the beginning of the program. In this case, a workshop or a seminar could be organized on-campus to explain to all parties (faculty members and new students) the importance of interaction during the program. For those who cannot attend the workshop on-campus, they could download a video clip digitized and posted on the ProAg website, which explains the importance of interaction and all the

requirements to maintain high levels of interaction during the program with instructors and other students. Alternatively, the ProAg administrators could offer this workshop online through videoconferencing for participants in remote sites. Johnson (2003) mentioned that "an orientation about online learning is critical for the success of new off-campus students. The orientation should cover different activities expected in the courses. It would serve in refreshing students' memory about the use of email messages, entering chat rooms, participation in videoconferencing, and how to contribute and post their ideas to bulletin boards"(p.124).

b. Interaction should take place between all students both on-and off campus. This could be through organizing a monthly online or on-campus meeting on Saturdays to meet and discuss common issues related to the ProAg program. Results of these meetings could be posted on the discussion boards to allow other on and off-campus students to share their ideas and participate.

c. Field trips could be organized for both on and off-campus students to foster the interaction process and maintain communication channels with their professors. A video clip could be posted on the ProAg website and/or recorded on videotapes and distributed to other off-campus students.

d. Since the ProAg program is a distance program, maintaining good ties

with all students is required for the success of the program. Thus, communicating via phone and email would be required for good interaction.

B. Implications

a. The results of conducting the workshop on-campus or posting a video clip to show the importance of interaction would be seen during and after the program, or what could be called "post interaction," in the form of high level of satisfaction among students and would impact the overall enrollment and will increase the retention rate for students. In addition, the workshop would help students who are not familiar with technology; the use of computers, Internet, emails, chat rooms, and discussions boards. This would assist in maintaining a high level of interaction between the three main components of interaction (student, content, and teacher).

b. The monthly meetings would increase students' interaction and develop communication and networking among off- and on campus students and their instructors.

c. Field trips would aid students in adding to their learning experience through observational and hands-on learning. It would also create a friendly environment where all students interact and chat, which would meet their social expectations.

d. Providing a toll-free phone number service where all students could

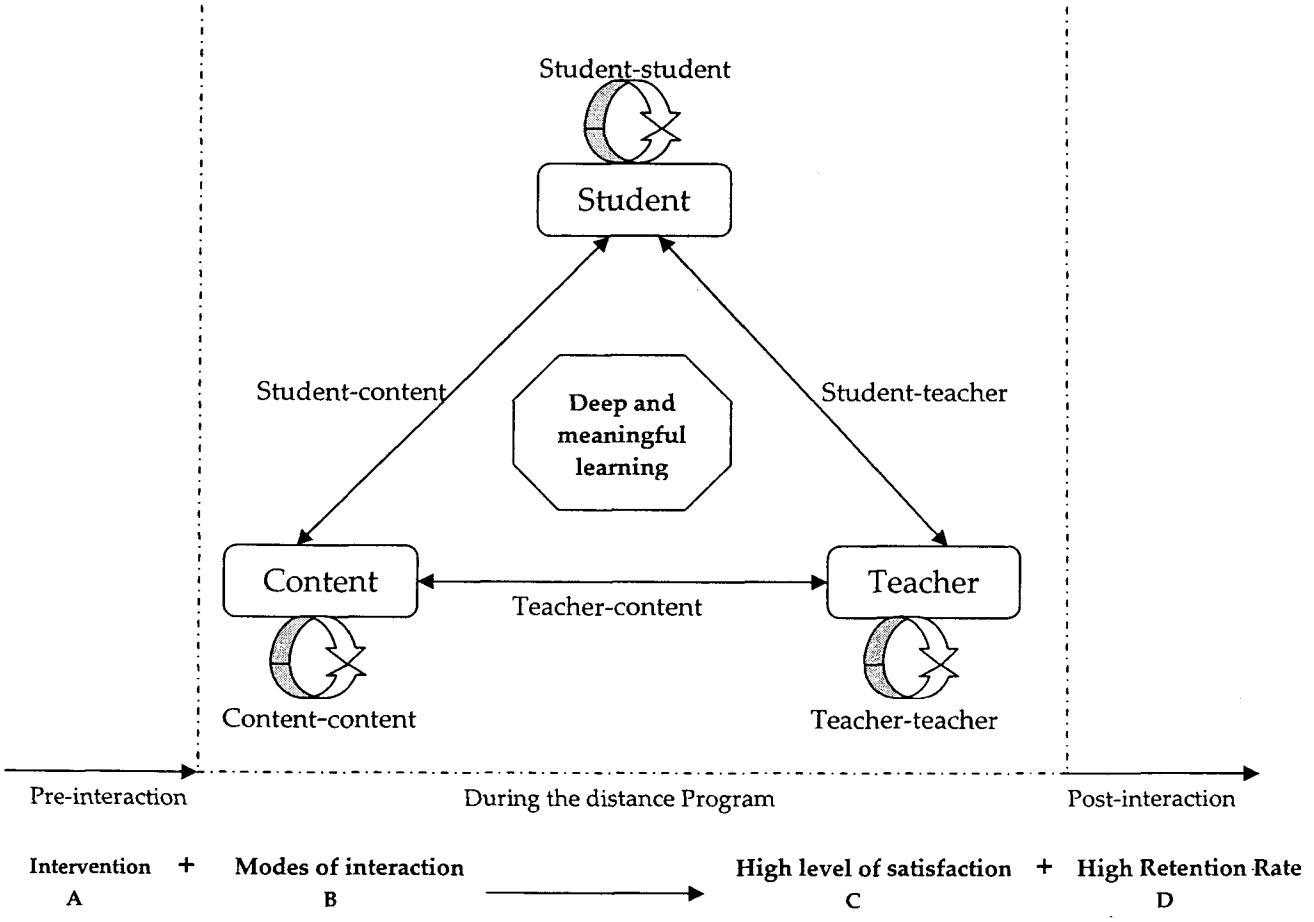


Figure 3. Intervention and modes of interaction in distance education.

reach the professors and/or tutors during their office hours would be an effective, easy way to communicate with off-campus students. Thus, it could become the most common communication medium used by students to contact faculty members.

Conclusion # 9: Future of the ProAg program

A few participants indicated that they would like to go beyond the Masters' Degree to study for a Doctoral degree in ProAg. There is a tendency among participants to keep the ProAg program as it is without focusing on specific areas of study or a cohort program. There is a high competition in the marketplace between universities and corporations to meet learners' needs for online and distance education. The recent expansion of distance education is due to several reasons including budget cuts, the war on terrorism, and globalization.

A. Recommendation

a. A study at Iowa State University could be conducted to reflect the real picture about demands in the market on a Doctoral degree in ProAg program locally and globally. If the results are visible and encouraging then starting a Doctoral degree in ProAg program at Iowa State University building on its reputation and recognition in the market could be an alternative. In this scenario, the new ProAg Doctoral program would be similar to the doctorate degree known as "Doc@Distance" which is a joint degree program in agricultural education offered

from two universities Texas A&M and Texas Tech University (Texas A&M Website, 2004). Iowa State University could develop a doctoral program without any partnership. Another alternative would be to establish the Doctoral program in collaboration with other public or private institutions either in the U.S. , Canada, Australia and Europe due to their advances in offering distance education programs. For example, Iowa State University could collaborate to offer a new online Doctoral program with other U.S or international universities, similar to the previous experience in offering the Global seminar course 597x in 2002 with Cornell University (host university) and other participants' institutions around the world e.g. The Royal Veterinary and Agricultural University in Denmark, Universidad Nacional de Columbia in Columbia, and North Carolina State University in USA (Muenchrath, 2002).

b. Keep the program diverse in regard to subject matter covered and courses taught in the ProAg program without focusing on a specific area.

c. The online education market is witnessing furious competition between universities and other providers. Thus, paying close attention to marketing strategies and policies is a key factor in the success of the ProAg program. Adjustments should be made to accommodate new changes. Offering new "courses" that meet the new demands in the marketplace is necessary to attract more students

to enroll in the program. Offer courses that target new clientele in the international market; such courses should focus on the new technology in the globalization era, rural development in developing countries and evaluation.

B. Implications

a. The Doctoral program would meet the growing demand among students to pursue a post-graduate degree beyond the ProAg Master's Degree, both in the U.S. and overseas.

b. The advantage of offering a Doctoral program is that it allows students to grasp different kinds of knowledge in multiple areas. The outcome or end product would be a graduate who is well equipped and qualified to work in a variety of areas in the agricultural field. In addition, offering a Doctoral program could be considered as in-service training for those who are already working, which would result in performing their jobs more effectively.

c. The new courses would help the ProAg program have a global perspective so that American students thoroughly understand the new changes in the global market, other rules, other cultures and systems, which would help them if they were to work in different parts of the world and would facilitate their jobs overseas.

The previous recommendations are made based on the findings and conclusions drawn from the study. The results of this study should be shared

with agriculture educators, university administrators, agribusinesses and private providers.

Questions for New Research

The study has caused the researcher to ask new questions:

1. What impact would new marketing and advertising plans have on the existing plans for ProAg Master's Degree program?
2. How will the competition between public institutions and private corporations in offering online programs influence the existing ProAg Master's Degree program?
3. How successful will the new ProAg Doctoral program be if offered from Iowa State University?
4. What are the perceptions of employers in public and private sectors regarding the current ProAg Master's Degree program?
5. What kind of technology will be used to deliver the ProAg Master's Degree program in the future?
6. What would be the plans of the ProAg program to expand globally?
7. Are off-campus students eligible for financial aid programs? What are the rules and federal acts that regulate their access to financial aid compare to on-campus students? Is financial aid is an issue to students from other countries

and what are the problems associated with that issue?

APPENDIX A. Human Subjects Approval

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Institutional Review Board
Office of Research Compliance
Vice Provost for Research and
Advanced Studies
2810 Beardshear Hall
Ames, Iowa 50011-2036
515 294-4566
FAX 515 294-7288

TO: Mohamed Yacoub

FROM: Ginny Austin, IRB Administrator

RE: IRB ID # 04-247

DATE REVIEWED: May 7, 2004

The project, *"Evaluation of the Professional Agriculture (ProAg) Off-Campus Masters' Degree Program at Iowa State University"* has been declared exempt from Federal regulations as described in 45 CFR 46.101(b)(2) according to the review and decision made by the IRB Committee.

(2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: (i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

To be in compliance with ISU's Federal Wide Assurance through the Office of Human Research Protections (OHRP) all projects involving human subjects, must be reviewed by the Institutional Review Board (IRB). Only the IRB may determine if the project must follow the requirements of 45 CFR 46 or is exempt from the requirements specified in this law. Therefore, all human subject projects must be submitted and reviewed by the IRB.

Because this project is exempt it does not require further IRB review and is exempt from the Department of Health and Human Service (DHHS) regulations for the protection of human subjects.

We do, however, urge you to protect the rights of your participants in the same ways that you would if IRB approval were required. This includes providing relevant information about the research to the participants. Although this project is exempt, you must carry out the research as proposed in the IRB application, including obtaining and documenting (signed) informed consent, if applicable to your project.

Any modification of this research should be submitted to the IRB on a Continuation and/or Modification form to determine if the project still meets the Federal criteria for exemption. If it is determined that exemption is no longer warranted, then an IRB proposal will need to be submitted and approved before proceeding with data collection.

cc: Yacoub
Ag Ed & Studies

APPENDIX B. Survey Instrument and Correspondence

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Department of Agricultural Education and Studies
201 Curtiss Hall
Ames, Iowa 50011-1050
Administration and Graduate Programs 515 294-5904
Research and Extension Programs 515 294-5872
Undergraduate Programs 515 294-6924

May 20th, 2004

Dear Graduate,

You have been selected from the alumni list to take part in a survey about the Professional Agriculture (ProAg) off-campus masters' degree program at Iowa State University. A few days from now you will receive the survey in the mail.

The survey is being conducted as a follow-up to your study experience at Iowa State University. We are really concerned and interested in what you think about the program. We are writing in advance because we have found many people prefer to know ahead of time that they will be contacted. This study is very important to better serve future students enrolling in the ProAg masters' degree program.

Your participation in this survey is voluntary, and we really appreciate your taking about 10-15 minutes to complete answering all questions in the questionnaire.

Thank you for your time and consideration. It is only with your generous help and participation this research would be successful.

Sincerely,

M.Yacoub
Doctoral Student

Dr. B. L. Jones
Professor

Dr. W. W. Miller
Professor

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

College of Agriculture
Department of Agricultural
Education and Studies
223 Curtiss Hall
Ames, Iowa 50011-1050
(515) 294-5904/ (515) 294-9191
FAX: (515) 294-0530

May 27th, 2004

Dear Graduate,

The department of Agricultural Education and Studies at Iowa State University is conducting a study to evaluate the Professional Agriculture (ProAg) off-campus masters' degree program offered from the College of Agriculture at Iowa State University. As a graduate of this program you have been chosen from the list of alumni provided by the university. We would like you to provide responses for the questionnaire. The information will assist in evaluating the current curriculum and employed practices which will help decision makers in better planning and designing the ProAg off-campus masters'degree program based on the needs of the end-user.

When you have completed the questionnaire, please return it in the postage-paid envelope provided. Your responses will be coded to protect confidentiality. When you returned your completed questionnaire, your name will be deleted from the mailing list and never connected to your answers in any way. The questionnaire should take approximately 15 minutes to complete and your participation is voluntary.

Enclosed is a $ 1 token incentive for your valuable contribution in the study. We are really grateful for your time and effort.

The information you provide will be held in strict confidence. Individual responses will be anonymous. Your participation is very important to the success of the research. The data and information collected will be used to complete a Ph. D dissertation and provide information that can be used when offering future off-campus masters' degree programs from the College of Agriculture. If you have any questions about the study please, contact M.Yacoub at (515) 294-9191; yacoub@iastate.edu and Dr. B.L. Jones, 201 Curtiss Hall, (515) 294-0898; x1jones@iastate.edu or Dr. W.W. Miller, 217 E Curtiss Hall, (515) 294-0895; wwmiller@iastate.edu

If you have any questions about the rights of research subjects or research- related injury, please contact the Human Subjects Research Office, 2810 Beardshear Hall, (515) 294-4566; austingr@iastate.edu or the Research Compliance Officer, Office of Research Compliance, 2810 Beardshear Hall, (515) 294-3115; dament@iastate.edu

We appreciate your participation.

Sincerely,

M.Yacoub
Doctoral Student

Dr. B. L. Jones
Professor

Dr. W. W. Miller
Professor

Post Card

June 3rd, 2004

Last week you should have received a questionnaire related to your study experience in the Professional Agriculture (ProAg) off-campus masters' degree program offered by the College of Agriculture at Iowa State University. Your name was selected from a list of alumni provided by Iowa State University.

If you have already completed and returned the questionnaire to us, please accept our sincere thanks. If not, please do so today. We are especially grateful for your help because it is only by asking people like you to share your experiences that we can improve the quality of the ProAg program and meet the needs of end-users.

If you did not receive a questionnaire, or if it was misplaced, please call us at 515- 294-9191 or via email at yacoub@iastate.edu and we will send another one in the mail to you today.

M. Yacoub
Doctoral Student

Dr. B. L. Jones
Professor

Dr. W. W. Miller
Professor

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Department of Agricultural Education and Studies
201 Curtiss Hall
Ames, Iowa 50011-1050
Administration and Graduate Programs 515 294-5904
Research and Extension Programs 515 294-5872
Undergraduate Programs 515 294-6924

June 17th, 2004

Dear Graduate,

About three weeks ago we sent you a questionnaire asking you about your educational experience with the Iowa State University College of Agriculture Professional Agriculture (ProAg) off-campus masters' degree program. To the best of our knowledge, it's not yet been returned.

We are writing again because of the importance of your participation in helping us to evaluate the ProAg program. Your responses are very important to get accurate feedback about the program which will help in better serving future students. Your name will never be associated to the results in any way. It is very important to us and the university, to protect the confidentiality of alumni's answers.

We hope that you will fill out and return the questionnaire soon, but if for any reason you prefer not to answer it, please let us know by returning a note or blank questionnaire in the enclosed stamped envelope.

If you have any questions about the study please, contact M. Yacoub at (515) 294-9191; yacoub@iastate.edu and Dr. L. Jones, 201 Curtiss Hall, (515) 294-0898; x1jones@iastate.edu or Dr. W. W. Miller, 217 E Curtiss Hall, (515) 294-0895; wwmiller@iastate.edu

If you have any questions about the rights of research subjects or research- related injury, please contact the Human Subjects Research Office, 2810 Beardshear Hall, (515) 294-4566; austingr@iastate.edu or the Research Compliance Officer, Office of Research Compliance, 2810 Beardshear Hall, (515) 294-3115; dament@iastate.edu

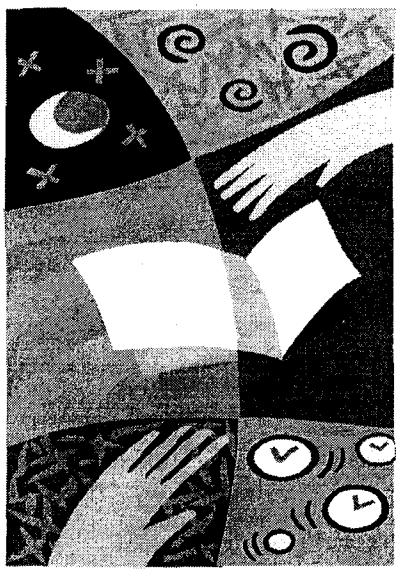
Sincerely,

M.Yacoub
Doctoral Student

Dr. B. L. Jones
Professor

Dr. W. W. Miller
Professor

Evaluation of the Professional Agriculture (ProAg) Program



Dept. of Agricultural Education and Studies

College of Agriculture

Iowa State University

2004

Program Information

Please respond to the following questions about Off-campus Professional Agriculture (ProAg) program.

SECTION I: Select the option that best describes your perception regarding practices in the ProAg Off-campus masters' degree program (admissions, financial aid, academic advising, career placement and advising).

1	2	3	4
Strongly Disagree	**Disagree**	**Agree**	**Strongly Agree**

1. Please indicate the extent to which you agree or disagree with each of the following items.

_____ a. I had access to admissions services.
_____ b. I had access to financial services.
_____ c. I had access to advising services.
_____ d. The registration procedure for courses was manageable.
_____ e. The ProAg program was well advertised.
_____ f. The ProAg program tuition and fees were reasonable.

SECTION II: Select those reasons that encouraged you to participate in the ProAg Masters' degree program.

2. I participated for the following reasons: (Check all that apply)
_____ a. To fulfill a degree requirement.
_____ b. For the enjoyment of learning new information.
_____ c. For self improvement/ personal satisfaction.
_____ d. My employer suggested it.
_____ e. To improve my career options.
_____ f. This program was essential for my job.
_____ g. Acquiring current technical knowledge
_____ h. Other reasons_____

3. What were your main reasons for choosing the off-campus ProAg masters' degree program rather than the on-campus program? (Check all that apply).
_____ a. Cost too expensive to take on-campus courses.
_____ b. Time- I was unable to take time off for on-campus study.
_____ c. Job requirements not flexible.
_____ d. Opportunity to study at time and place of my own choosing.
_____ e. Quality of the ProAg program.
_____ f. Needed a distance educational program
_____ g. Could not identify another distance education program.
_____ h. Wanted a broad-based agriculture program.
_____ i. Other reasons_____

4. What or who influenced you to earn your degree from ISU (Check all that apply).

_____ a. Reputation of ISU.
_____ b. Reputation of the college of agriculture at ISU.
_____ c. No other institutions offered an off-campus masters' degree in agriculture.
_____ d. Could not relocate to Ames to work on masters' degree.
_____ e. Fit my work schedule.
_____ f. Costs were reasonable.
_____ g. Professional colleague.
_____ h. Spouse.
_____ i. Parent
_____ j. University employee (professor, extension professional, etc.)
_____ k. Employer
_____ l. Website for the program.
_____ m. Other_____

5. Do you feel the amount and quality of work required for the off-campus masters' degree was adequate for the training and educational experience? (Please circle one option to rate your own experience using the following scale).

1 Poor
2 Fair
3 Good
4 Excellent

SECTION III: Identify if your needs and expectations were met or exceeded.

6. Did the ProAg program meet your *professional career expectations*? (Circle your response)

_____ a. Exceeded my expectations
_____ b. Met my expectations
_____ c. Did not meet my expectations

7. Did the program meet your *social expectations*? (Circle your response)

_____ a. Exceeded my expectations
_____ b. Met my expectations
_____ c. Did not meet my expectations

8. What did you enjoy most about the ProAg program?

9. What did you enjoy least about the ProAg Program?

10. What were the three most useful things you learned during the ProAg Program?

11. The ProAg program provided value for money? (Circle one response)

1	2	3	4
Strongly Disagree	**Disagree**	**Agree**	**Strongly Agree**

12. Overall how satisfied were you with the ProAg program? (Circle one response)

1	2	3	4
Very dissatisfied	**Dissatisfied**	**Satisfied**	**Very Satisfied**

13. Did the content of the ProAg program address the stated objectives? (e.g. provide advance training in science, technology, and business of the agriculture food system).
Yes _____ No _____

14. Provide a response for each item that most closely reflects your advice for the future of the ProAg program (Please use the scale below in your responses).

1	2	3	4
Strongly Disagree	**Disagree**	**Agree**	**Strongly Agree**

_____ a. Offer more courses in a variety of agricultural areas.
_____ b. Offer different majors (e.g. animal science, agriculture business, etc.) not just professional agriculture.
_____ c. Offer a co-hort program.
_____ d. Focus the program on a specific area. Suggestions:_____
_____

SECTION IV: Please use the following scale to respond to the next set of questions.

1	2	3	4
Strongly Disagree	**Disagree**	**Agree**	**Strongly Agree**

15. After finishing the ProAg masters' degree program I feel that the program has impacted my life as follows:

_____ a. New Knowledge
_____ b. New Skills
_____ c. Better understanding
_____ d. Enabling job improvement or better job
_____ e. Enabling a degree

16. The ProAg program provided me with the following:

_____ a. Effective work habits
_____ b. Critical thinking skills
_____ c. Decision making skills
_____ d. Ability to communicate effectively (Writing and speaking)
_____ e. Ability to work with others
_____ f. Self-confidence
_____ g. Problem solving Skills

17. Benefits of the ProAg studies were:
_____ a. Promotion at work
_____ b. Ability to get a better job
_____ c. Ability to do job more effectively
_____ d. Raise
_____ e. Other _____
_____ f. None

18 Benefits (if any) experienced immediately upon (or soon after) graduation:

_____ a. Promotion at work
_____ b. Ability to get a better job
_____ c. Ability to do job more effectively
_____ d. Raise
_____ e. Other _____
_____ f. None

19. Can you identify any long term benefits of the ProAg program?.

Yes _____ No _____

Please give details:

20. Have you any other comments about your study with the ProAg program?

21. Approximately what proportion for the ProAg program has been relevant to your career? (Check one).
_____ a. 100 %
_____ b. 75-99 %
_____ c. 50-74 %
_____ d. 25-49 %
_____ e. 0-24 %

22. The ProAg program did improve my skills in the following areas. (Please use the following scale to respond to this question)

1	2	3	4
Strongly Disagree	**Disagree**	**Agree**	**Strongly Agree**

_____ a. Written skills.
_____ b. Analytical skills
_____ c. Written ability to cope with greater or more complex tasks at work.

23. How well do you feel the off-campus ProAg program prepared you for your current job? (Check one).

1	2	3	4	5
Not currently working	**Poor preparation**	**Fair Preparation**	**Good preparation**	**Excellent preparation**

SECTION V: Please identify any barriers that may have affected you as an off-campus student while earning your ProAg masters' degree.

24. Please indicate the extent to which you agree or disagree with each item below by using the following rating scale.

1	2	3	4
Strongly Disagree	**Disagree**	**Agree**	**Strongly Agree**

_____ a. Dealing with many different departments on campus was not easy.
_____ b. The courses offered did not fit my needs.
_____ c. It was difficult to balance school, personal, and work responsibilities.
_____ d. Access to library facilities was not an easy task.
_____ e. Prerequisites required for classes were unclear
_____ f. The cost of the program was affordable.
_____ g. Access and communication with other students was simple.
_____ h. A small number of courses were offered.
_____ i. Scholarships were limited to a small number of students.
_____ j. Access to instructors was a difficult task
_____ k. ISU faculty did not understand my needs.
_____ l. Accessing financial aid at the university was not an easy job
_____

SECTION VI: The following questions concern your perception regarding the teaching methods and quality of instruction in the ProAg program.

1	2	3	4
Strongly Disagree	**Disagree**	**Agree**	**Strongly Agree**

25. Please indicate the extent to which you agree or disagree with each item below by using the following rating scale.

_____ a. The teaching methods used in distance education are better than the traditional teacher, textbook and classroom method.
_____ b. The distance education teaching methods allowed me to work independently at my own pace.
_____ c. The instructor maintained dialogue among students in different sites to increase participation.
_____ d. The distance education teaching methods were convenient to my lifestyle as a full time worker.
_____ e. The professors were well qualified to teach the ProAg courses.
_____ f. The professors did great a job in teaching the ProAg courses.
_____ g. The professors did not know the subject matter for the ProAg courses.
_____ h. The professors were well trained to use and implement technology to teach the ProAg courses.

SECTION VII: The following questions represent your perception regarding your interaction with your instructors.

26 Please indicate the degree to which you interacted with instructors for each of the following. (Please use the scale below).

1	2	3	4
Never	**Rarely**	**Sometimes**	**Always**

_____ a. I had interaction with my professors while studying as an off-campus student.
_____ b. I contacted my professors regularly during the program.
_____ c. I received regular feedback from my professors.
_____ d. The professors interacted with off-campus students during the live lectures.
_____ e. On-campus students interacted with off-campus students.

27. Please indicate the extent to which you agree or disagree with each item below by using the following rating scale.

1	2	3	4
Strongly Disagree	**Disagree**	**Agree**	**Strongly Agree**

_____ a. Interaction between my professors and myself was helpful.
_____ b. Interaction with on-campus students was important to me.
_____ c. Interaction with other distance students was important for me.

28. Did you use any of the following types of communication to interact with your instructors?

a.	Email	Yes _____	No_____
b.	Phone	Yes _____	No_____
c.	Mail	Yes _____	No_____
d.	Meetings	Yes _____	No_____
g.	Other_____	Yes _____	No_____

29. What type of interaction mode did your prefer using with you instructors?

SECTION VIII: Demographic Information
The following questions are designed to help us know a little about the person participating in the study.

30. What is your age? _____Years

31. What is your gender? _____ Male _____Female

32. What is your ethnic background?

_____ a. Caucasian
_____ b. African-American
_____ c. Latino/a
_____ d. Asian American
_____ e. Native American
_____ f. Other (please specify)_____

33. Please indicate your current occupation? (Check all that apply)

_____ a: Farming
_____ b. Agribusiness
_____ c. Agricultural extension
_____ d. Agricultural education teacher
_____ e. U.S. Government
_____ f. State Government
_____ g. Other (please specify)_____

34. Please indicate your occupation or employment status when you began the ProAg program? (Check one)

_____ a. Farming
_____ b. Agribusiness
_____ c. Agricultural extension
_____ d. Agricultural education teacher
_____ e. U.S. Government
_____ f. State Government
_____ g. Other (please specify)_____

35. What is your current work status?

_____ a. Full time
_____ b. Part time
_____ c. Unemployed
_____ d. Retired
_____ e. Self-employed

36. Would you recommend taking the ProAg program in this mode to a friend?
Yes _____ No_____ Why?

Thanks again for your time and help.

Please return your questionnaire in the enclosed envelope to:
M. Yacoub
College of Agriculture
Department of Agricultural Education and Studies
223 Curtiss Hall
Ames, Iowa 50011-1120

APPENDIX C. Additional Information about the ProAg Program

Demographics

The following table (Table A) presents some information related to the gender of the population under study between the years of 1982-2004. This information indicates that the majority of respondents were males. This trend continued from the beginning of the program until our days.

Table. A

Year	Number of graduates	Answered surveys		Unanswered Surveys		Total	
		Male	Female	Male	Female	Male	Female
82-86	7	3	2	2	-	5	2
87-91	29	24	2	3	-	27	2
92-96	20	15	1	3	1	18	2
97-01	32	19	6	6	1	25	7
02-04	18	11	3	4	-	15	3
Total	106	72	14	18	2	90	16

Interaction

The following table B summarizes graduates' perception regarding the importance of interaction with on-campus students.

Table. B

Year	Male				Female				Missing	Total
	SD	D	A	SA	SD	D	A	SA		
82-86	1	2	-	-	-	1	-	-	1	4
87-91	2	15	5	-	1	1	-	-	2	24
92-96	4	7	3	-	1	-	-	-	-	15
97-01	4	7	7	1	1	4	-	1	1	25
02-04	4	3	3	-	-	2	1	-	1	13
Total	15	34	18	1	3	8	1	1	5	81

Strongly Disagree	(SD)	18
Disagree	(D)	42
Agree	(A)	19
Strongly Agree	(SA)	2
Total		81

From the previous table (Table B) we could conclude that the majority of respondents preferred not to interact with on-campus students and considered interaction as unimportant issue. This applies to both genders who responded to the questionnaire instrument. The only time where some respondents indicated the highest importance to this issue was between years of 1997-2001.

Program delivery

The ProAg program was delivered as follows:

***1979-1983*:** During the first five years of the program it was delivered primarily face-to face where the professor travels to off-campus sites to teach courses (Drove or Flew).

Beginning to Mid 1980': Video cassette reports became more prevalent later course delivery shifted to videotapes (shipped or mailed) to students' homes.

In 1993 course delivery shifted to Iowa Communication Network (ICN) which is according to (Simonson et al.2000) "is a statewide, two-way, full motion interactive fiber optic telecommunications network with hundreds of connected classrooms. It is designed to be used by teachers and students in learning situations where they can and expect to see and hear each other" (p.82).

The ICN delivery method was used for students in Iowa while out State students continued to receive course materials through videotapes.

The ICN stopped by the end of the 1990's due to the flowing reasons:

1. It was unable to serve student outside Iowa State.
2. Students preferred the courses to be delivered to their homes. In this case, they don't have to drive or go to a site to attend their classes at night from 6:00-9:00pm. These sites were usually a county extension office, local high schools, community colleges and the National Guard Army. Students wanted asynchronous delivery so they could check the course materials at their own pace.
3. In general we could conclude that the synchronous method did not work out because it was too inconvenient to students who work full time

Beginning in 2000 –Present: Courses delivery began to be converted over to:

1. CD's mailed to students.
2. Web based courses.
3. Web based courses utilizing Web CT which is a course management program (Wade Miller's instructor notes, 2004)

Advising in the ProAg program: The head of the ProAg program served as a temporary advisor for all incoming students. Later, the head of the ProAg program work with each student to select a major professor and two additional committee

members for his or her program of study (POS) (Wade Miller's instructor notes, 2004).

Time limits: "The work for the Master's degree should be completed within 5 years" (ISU graduate college, 2004).

Creative Component: "every nonthesis student must present substantial evidence of individual accomplishment (e.g. a special report, capstone course, integrated filed experience, annotated bibliography, research project, design, or other creative endeavor). A minimum of two credits of such independent work is required on every program of study (POS) for a nonthesis master's degree. Some programs require more credits; these are specified in the ISU Catalog. The element of creative independent study must be explicitly identified on the POS. The format of the creative component is determined in cooperation with the POS committee. As with a thesis, a creative component should be submitted to members of the POS committee two weeks before the final oral examination. However, no final submission of a creative component is turned in to the Thesis Office or Graduate College for review and approval." (ISU graduate College Handbook, 2004).

Financial Aid: Since the start of the ProAg program in 1979 until present the only financial aid option available to off-campus students is loans (ISU financial aid, 2004).

Titles of recent creative component project reports

1. "Effect of N-Serve on Protein Content of Corn
2. Yield Estimation in Seed Corn Production
3. Use of Progesterone Tests to Improve Reproductive Performance of High Producing Dairy Cows
4. Warehousing and Grain Dealer Regulation
5. An Evaluation of Screening Individual F4 Soybean Plants for Resistance to Brown Stem Rot
6. An Assessment of Factors that Influence a Producer's Weed Management Attitude
7. Comparisons Between Thinned and Un-thinned Corn Yield Trial Plots
8. The Economics and Externalities of Selected Family Farm Enterprises
9. The Restoration Process of Mountain Lake Golf Club
10. Row Spacing & Tillage System Effects on Soybean Yield and Its Relation to Soybean Growth Models
11. Management Decisions: A Case Study
12. Visually Rating the Nitrogen Status of Corn
13. Corn Yield Response to Nitrogen from Chopped Mixed-Paper Manure Bedding
14. Historical and Current Consolidation of Dairy Cooperatives in the Upper Midwest
15. Project Equipropeq (Equipo para el Productor Pequeno)

16. Lake Red Rock Web Page

17. 4-H Web Page: The Iowa 4-H Education and Natural Resources Center

18. Herd Health Management of the Bovine Species

19. Correlation Study of Corn Yields: Nitrogen Application Rates on CC vs. CSB Rotations

20. Use of High Oil Corn in Practical Feeding Programs for Tom Turkeys

21. Study of Nitrogen Fertilizer Test in Galva and Ida Soil Associations

22. Increasing Your Bottom Line: Educational Presentation for Agricultural Customers

23. Evaluation of Beef Rib Steaks

24. The Relationship Between F1 and F2 Generations of Crosses Between and Within Heterotic Groups of Corn Inbreds

25. Changes in Fertilizer and Manure Applications on farms Receiving One to One Nutrient Management Education

26. Building Partnerships Between Schools and Businesses

27. Yield Response of Soybeans to Isoflavonoids (Initiate) A Biological Signal Compound

28. Variations in Maize Ear Characteristics at Different Plant Densities

29. A Comparison of Stored Grain Insects in 1985 and 1986 Farm Stored Corn

30. Yield Response to Row Cultivation of No-Till Corn

31. An Assessment of Agricultural Grain Auger Related Injuries and Iowa Farmers' Perception of Safe Auger Usage

32. Pork Producer Attitudes Towards Corn Grain Nutritional Traits

33. Agronomic Educational Presentation for Commercial Growers

34. Issues of the 90's - Perspectives on Precision Farming, Agricultural Biotechnology, Hybrid/Variety Selection

35. A Field Study on the Effects of Crop and Irrigation on Groundwater Nitrate-Nitrogen

36. No Till Drilled Soybeans Planting Rates and Stand Evaluation

37. Swine Mortality Disposal - Industry Survey

38. Two-pass Weed Control Systems

39. Factors Affecting Personal Financial Decision Making Practices of Iowa Farm Families

40. Effect of Row Spacing on Yield and Profitability of Soybeans

41. Muscatine Community High School Horticulture Curriculum – 2000

42. Effect of Defoliation of the Indeterminate Soybean Plant at the R6 and R6.5 Stages of Development

43. A Strategic Alignment Manual for Wilson Seed and Supply Inc.

44. An Economic Analysis of Electronic Pedometers as an Aid in Heat Detection"(Wade Miller notes, 2004)

APPENDIX D. Additional Tables

Table C. Participants' demographic characteristics and their responses to the choice "other" regarding their occupation/status at the time of their enrollment in the ProAg program.

Theme	Sex	Age	occupation/status
Education	Male	26	Associate professor
	Male	31	Community college professor
	Male	61	Community college professor
	Male	27	full time student
	Female	26	Student-graduated w/B.S. & went straight into this
	Male	50	program Student
	Male	43	Student
	Male	61	Teacher, farmer, and construction
Business and	Male	36	Animal Health, Products manufacturing
Government	Male	40	Banking
sectors	Female	47	County government
	Male	48	Golf superintendent
	Female	38	Media
	Male	60	Non-Ag. Business*
	Female	45	SCS/NRCS
Health industry	Female	37	Pharmaceutical research
	Male	35	Pharmaceutical Company*

* With the exception of this respondent of Latino heritage, all other respondents were Caucasian

Table D. Participants' demographic characteristics and their responses to the choice "other" regarding their current occupation/status.

Theme	Sex	Age	Current occupation/status
Education	Male	31	Associate professor/assistant- chair community college
	Female	32	Higher Education
	Male	54	Professor-AgEd
Farming	Female	36	Animal health, Products manufacturing
	Male	62	Crop consultant
	Male	52	Producer Association National Pork Board
	Male	42	Wet corn milling labor
	Male	61	Professional farm manger and certified appraiser
Religion	Male	52	Pastor
	Male	51	Pastor in Lutheran Church
Health industry	Female	61	Health informatics
	Female	37	Pharmaceutical research
	Male	45	Public health, not agriculture
Other businesses	Male	60	Non-Ag Business*
	Male	40	Banking
	Female	57	Executive Director, Dubuque Humane society
	Male	48	Golf course construction
	Male	59	Haven't been able to find a job ,
	Male	50	None can't get a job without a PhD
	Male	52	Real estate Lender-commercial
	Female	26	Territory manger for John Deere distribution in central
	Male	42	Florida
			Various unpaid boards/committees
Retired or semi-	Male	66	Retired
retired	Male	69	Retired but raise & show horses
	Male	67	Retired from Ag. Extension
	Male	73	Retired from agricultural education teaching
	Male	61	Retired in 2001 I had a new heart
	Male	68	Semi-retired
	Male	66	Semi-retired. 2 part time jobs, do work with NRCS watershed project and do part time carpenter work about 20-25 hours/week in each job

* With the exception of this respondent of Latino heritage, all other respondents were Caucasian

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